AOGD BULLETIN

Volume 15; Issue No.5; September 2015

Price: ₹30 only

Dedicated Issue:

Medical Disorders in Pregnancy

Promote Health
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AOGD SECRETARIAT

Room No-118, Ward 8, Deptt. of Obst & Gynae, VMMC & Safdarjung Hospital, New Delhi-110 029

Ph- 011- 26181879, 26714473, Email: aogdsjh2015@gmail.com

AOGD Office Bearers 2015-16

AOGD Office
Room No.118, Ward No. 8
Department of Obstetrics & Gynaecology
Vardhman Mahavir Medical College & Safdarjung Hospital
New Delhi-110 029
Tel.: 011 26181879, 26714473
email: aogdsjh2015@gmail.com
website: http://www.aogd.org

AOGD BULLETIN
Volume 15-5, September 2015

Contents

Publisher/Printer/Editor
Dr Jyotsna Suri on behalf of Association of Obstetricians and Gynaecologists of Delhi.

Printed at
Process & Spot C-112/3, Naraina Industrial Area, Phase-1, New Delhi 110 028

Published from
AOGD Office: Room No.118, Ward No. 8, Department of Obstetrics & Gynaecology, Vardhman Mahavir Medical College & Safdarjung Hospital New Delhi-110 029

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Message from the President

Dear AOGD friends,

Our great nation has been known to be the torch bearer of ancient medicine. The oldest known medical texts are the Suśruta Saṃhitā and the Charaka Saṃhitā. Charaka gives advice that physician who fails to know the body of a patient with the lamp of knowledge and understanding can never treat. This was as far back as 800 BC.

The quest for knowledge and excellence continues. This constant improvement in understanding of diseases and their treatment is also reflecting in improved maternal mortality ratio all over the world including our country. However the triad of haemorrhage, hypertension and sepsis continues to challenge our country, compounded by the alarmingly high prevalence of anaemia. The National Anaemia Prevention Programme which advocates weekly iron and folic acid supplementation in all adolescents is a laudable step and is sure to make a positive impact on maternal morbidity and mortality in the coming years. The present issue deals with medical disorders in pregnancy, another flower in this esteemed bouquet of bulletin.

Former President A. P. J. Abdul Kalam said.....

"Excellence is a continuous process and not an accident". Let's strive to follow this great man's footsteps. We are committed to achieve a better tomorrow.

The woods are lovely, dark and deep,
But I have promises to keep,
And miles to go before I sleep,
- Robert Frost

Dr Pratima Mittal
President, AOGD
drpratima@hotmail.com

From the Secretary's Desk

Dear Members,

I welcome you all to yet another full platter of academic bonanza in September. Thanks to you all, the activities which had begun earlier are being carried out with full zest...

The AOGD members again got a treat with free Ethicon Advanced endoscopy one day certification course for 30 members. The 2nd module of 3rd trimester USG course was held on on 24th August by Dr Anita Kaul at Safdarjung Hospital and was really appreciated by the delegates.

As you all know a stich in time saves nine, we are continuing to do our bit by doing comprehensive health care camps. This month we had two such camps, one organised by Dr N P Kaur at Janakpuri on 9th August and second by Dr Rupali Dewan at Aliganj on 12th August. Dr Poonam Chawla has volunteered for organising it on 22nd September at West Delhi.

Medical disorders in pregnancy are one of the most important causes for maternal morbidity and mortality. In this issue new developments in this field are being covered.

As we enthusiastically prepare for the conference, all of you are cordially invited for registration, paper presentations and workshops.

I believe that good things come to those who work……Wilt Chamberlain

Dr Achla Batra
Hon. Secretary, AOGD
achla_batra@yahoo.com

Events at Safdarjung Hospital in September

- **Urogynaecology Workshop** "Conservative Management of SUI- Pessary, Biofeedback PFMT" by Urogynaecology Subcommittee of AOGD on 4th September, 2015. Safdarjung Hospital, New Delhi
- **Guest Lecture "**Morbidly Adherent Placenta- Challenge for Obstetrician" by Dr Poitr Leseny (UK) on 18th September, 2015 at Safdarjung Hospital, New Delhi

AOGD Monthly Meeting Schedule 2015-16

Month / Year	**Institute**
Thursday, 24th September, 2015	**PGIMER Auditorium, RML Hospital**
Friday, 23rd October, 2015	Sir Ganga Ram Hospital
Friday, 27th November, 2015	MAMC & LNJP Hospital
Friday, 18th December, 2015	Hindu Rao Hospital
Friday, 29th January, 2016	LHMC & SSK Hospital
Friday, 26th February, 2016	UCMS & GTB Hospital
Friday, 25th March, 2016	ESI Hospital, Basaidarapur
Friday, 29th April, 2016	Apollo Hospital

From the Editor's Pen

Dear AOGD Friends,

Greetings from the Editorial Team! It is indeed a pleasure to bring forth our next issue in front of our esteemed members. The encouragement and warmth we receive from all of you is very precious for us and drives us on.

This time we are focussing on the medical disorders in pregnancy. All of us constantly face the challenges of managing a high risk pregnancy suffering from diabetes, hypertension etc. With rapidly changing management protocols, we felt that this issue could help our readers to keep abreast with some of the advancements. The topics covered include- anaemia, diabetes, heart disease, chronic kidney disorders, jaundice in pregnancy, thyroid disorders and urinary tract infections. The new ACOG guidelines for management of preeclampsia/eclampsia and the challenging topic of thrombophilias have also been delved upon. The drug review features, hydralazine which is now a recommended drug for managing hypertensive emergencies in pregnancy.

We had the pleasure of interviewing Dr SK Bhandari for the "Luminary" feature. Despite her mammoth achievements, her humble and selfless nature comes across clearly through her pearls of wisdom. The response for the Brain Teasers is very good but our request to our readers is to post their entries as early as possible so that the winner can be declared in the monthly meeting.

Looking forward to meet all of you at the Annual Conference!

"Perfection is achieved, not when there is nothing more to add,
but when there is nothing left to take away"
-Antoine de Saint

Dr Jyotsna Suri
Editor, AOGD
jyotsnasuri@gmail.com

Editorial board: (from Lt to Rt) Dr Kashika, Dr Kavita, Dr Rekha, Dr Jyotsna, Dr Harsha, Dr Deepali, Dr Deepika, Dr Archana

CLINICAL GUIDELINES

Hypertensive Disorders in Pregnancy: New Recommendations…

Upasana Verma[1], Harsha S Gaikwad[2], Rekha Bharti[3]
[1]Senior Resident, [2]Professor, [3]Assistant Professor, Deptt. of Obst & Gynae, VMMC & Safdarjung Hospital, New Delhi

Introduction

Hypertensive disorders are the most common medical problems encountered during pregnancy affecting approximately 5-10% of all pregnancies. They also contribute to important reason for iatrogenic prematurity, fetal growth restriction and neonatal morbidity and mortality.

Classification

There have been changes in nomenclature and classification of hypertensive disorders in pregnancy:

1990--- PIH-→- gestational HTN, mild or severe preeclampsia, eclampsia

2013--- Mild or severe preeclampsia-→ preeclampsia, preeclampsia with severe features

Reasons behind these changes- Failure of health care providers to appreciate the multisystem nature of preeclampsia (PE) due to rigid diagnostic criteria i.e. dependence on proteinuria. Secondly, PE is a dynamic process. The term mild only applies at the time of diagnosis as the disease is progressive, be it at different rates.

Task force (ACOG), in 2013, recommended its classification with few modification[1]:

Gestational Hypertension- SBP> = 140mm Hg, DBP>=90mm Hg detected first time during pregnancy after 20 week; without proteinuria; BP returns to normal 12 weeks after postpartum. 25% women with gestational hypertension progress to preeclampsia

Preeclampsia – Eclampsia Syndrome- Preeclampsia- SBP>=140mmHg, DBP>=90mmHg after 20 weeks of pregnancy with proteinuria >=300mg/24 hour, dipstick >=1+; and/or high BP in the presence of severe features/ end organ damage. Preeclampsia with severe features— SBP>=160 mmHg, DBP>=110mmHg on two occasions 4hours apart while patient is on bed with proteinuria>2 gram /24 hour.

In recommendation of syndromic approach of PE, task force has eliminated the dependence of diagnosis of proteinuria[1].

Preeclampsia with severe features- **i**nclude following signs and symptoms (in the absence of proteinuria)- Thrombocytopenia (< 1 lakh/microlitre); Pulmonary edema; New onset cerebral or visual symptoms; Impaired LFT (liver transaminases double the normal value with or without severe persistent right upper quadrant pain or epigastric pain unresponsive to medication; New development of renal insufficiency (serum creatinine > 1.1 mg/dl, doubling the previous value)

Eclampsia- Seizure that cannot be attributed to other causes in women with preeclampsia

Chronic Hypertension- Mild-BP > 140/90, severe-180/110; SBP>=140, DBP>=90 before pregnancy or before 20 week of gestation; Persistent 12 weeks after postpartum; High risk factors associated- age>=40, HTN>=15yrs, K/C/O DM, renal disease, cardiomyopathy, connective tissue disorder, presence of lupus anticoagulant, previous pregnancy with perinatal loss.

Chronic Hypertension with Superimposed Preeclampsia- Acute onset proteinuria; Worsening of hypertension; Associated with signs and symptoms of preeclampsia

Preeclampsia

PE is a multisystem disorder of unknown etiology usually occurring after 20 weeks gestation. It is a syndrome defined by hypertension >=140/90 with proteinuria >300 mg/dl in previously normotensive and non proteinuria patients. It involves 2-7% of healthy nulliparous patients and reported to have 5-8% incidence but it appears that the prevalence has increased over past 30 years[2].

Prevention of preeclampsia- According to task force recommendations[1]- Vitamin C and E, bed rest/restriction of other activities, restriction of dietary salt are not effective. Calcium may be used to reduce severity in low calcium intake population. Low dose aspirin (60-80 mg) is slightly effective in reducing PE.

Management of preeclampsia- The ultimate aim is to deliver but balancing maternal and fetal risks and maintaining the safety of the mother. Decision for immediate delivery v/s expectant management is based upon: Disease severity, fetal maturity, cervical status, maternal and fetal condition.

PE without severe features- gestation age ≥37 weeks- deliver; gestation<37 week-expectant management until term or maternal or fetal indication for delivery. Bed rest is no longer suggested; Serial maternal assessment (symptoms, BP, weight gain, lab investigations – LFT, KFT, CBC with PC LDH); Serial fetal assessment (NST, BPP, fetal kick count, serial ultrasound for AFI and growth)

PE with severe features- Gestation more than 34 weeks - deliver; 33 - 34 weeks- steroid cover and deliver after 48 hours if maternal or fetal status allows; 22 - 32 weeks- antihypertensive medicine, steroid cover, extensive counseling, close surveillance, deliver for maternal and fetal indication at 34 week gestation; Less than 22 weeks - consider delivery, expecting management is not recommended.

Magnesium sulphate should be started with diagnosis of PE with severe features as it helps to prevent seizures with additional benefits of reducing incidence of placental abruption.

Precautions during labor- Uterine contractions during labour lead to increased cardiac output and increased blood pressure. Hence, strict BP monitoring should be done with antihypertensive treatment accordingly. These women also lack the normal pregnancy hypervolemia, and hence are much less tolerant of even normal blood loss than are normotensive pregnant women. Fluid administration is routinely at the rate of 60 ml to no more than 125 ml per hour unless there is unusual fluid loss. Infusion of large fluid volumes enhances the risk of pulmonary and cerebral edema owing to increased capillary permeability.

Preeclampsia is not an indication of caesarean section, it should be done for obstetric indications and regional anaesthesia is preferred.

Task force recommendations (ACOG)

Administer corticosteroids and delivery deferred for 48 hours if maternal and fetal conditions remain stable for women with severe PE and viable fetus at $33^{6/7}$ weeks or less of gestation with any of the following: PPROM; labour pains; thrombocytopenia(<1 lakh/ microlitre); persistent abnormal hepatic enzyme concentration(twice or more than upper normal values); fetal growth restriction (less than 5^{th} percentile); severe oligohydroamnious (AFI< 5 cm); reversed end diastolic flow on umbilical artery Doppler studies; new onset renal dysfunction or increasing renal dysfunction

Administer corticosteroids if the fetus is viable and at $33^{6/7}$ weeks or less of gestation but the delivery not be delayed after initial maternal stabilization regardless of gestation age for women with severe PE that is complicated with further any of the followings: uncontrolled severe hypertension; eclampsia; pulmonary edema; abruptio placenta; DIC; evidence of nonreassuring fetal heart rate; intrapartum fetal demise

For women with PE undergoing cesarean delivery the continued intraoperative administration of parenteral magnesium sulphate to prevent eclampsia is recommended.

Eclampsia

An eclamptic seizure may be preceded, or it may appear unexpectedly in patient with minimally elevated BP and no proteinuria. It lasts for 60-90 seconds during which time the patient is without respiratory effort. A postictal phase may follow with confusion, agitation and combativeness. It can be antepartum (53%), intrapartum (19%) or postpartum (28%).

Eclampsia Management- Definite treatment of eclampsia is delivery. But first step is to stabilize the unstable mother even if there is fetal distress. *Refer to Flow chart 1 for step wise management of eclampsia.* Vaginal delivery should be planned- if cervix is favourable, fetus is dead or too premature. Caesarean is planned when cervix is unfavourable with live fetus, fetal distress, and unsatisfactory progress of labour.

Monitoring- Never leave the woman alone, observe vital signs, reflexes, fetal heart rate and auscultate the lung bases hourly. If rales are heard, withhold fluids and give furosemide 40 mg IV.

In case of oliguria→ correct hypovolemia→ give furosemide 40 mg→ no improvement→ CVP line and fluids accordingly or urine output in preceding hour plus 30 ml.

Postpartum care- Strict vigilance is required; maintain anticonvulsant therapy 24 hour of delivery or the last convulsion whichever later. Monitor urine output, BP charting, Antihypertensive to be administered accordingly, If coma persists, neurological referral with CECT head to be obtained.

Follow up- Patient is to be kept for observation for 4-7 days after delivery. If discharged on antihypertensives, review after 1 week and again after 6 weeks. Specific investigations- APA, lupus anticoagulant, thrombophilia screening if patient had early onset eclampsia or severe PE.

Gestational hypertension

Severe gestational hypertension is associated with higher maternal and perinatal mortality than mild PE

New management recommendation: Close monitoring- Twice weekly BP monitoring, at least one visit weekly in office with urine protein assessment, weekly lab assessment- platelet counts, liver enzymes. Antihypertensive medications- Only if persistent BP >160/110; Strict bed rest is not recommended for all women but on an individual basis

Delivery recommendation: Mild disease- expectant management until 37 weeks; severe features- delivery after 34 weeks

Chronic hypertension

Management: Labetalol, methyldopa, nifedipine are the initial drugs. ACE Inhibitors, angiotensin receptor blocking agents, renin inhibitors, mineralocorticoid

receptor antagonists are not recommended until there is compelling reason such as proteinuric renal disease. Antihypertensive agents to be started if BP >=160/110, to maintain SBP=140-150; DBP=90-100

Maternal and fetal surveillance- If no maternal and fetal compromise, delivery before 38 is not recommended. With superimposed preeclampsia without severe features and stable maternal and fetal condition- expectant management upto 37 weeks.

Chronic hypertension with superimposed preeclampsia with severe features- MgSO4, delivery, administer steroid if <34 weeks.

Flow Chart 1 - Stepwise management of Eclampsia

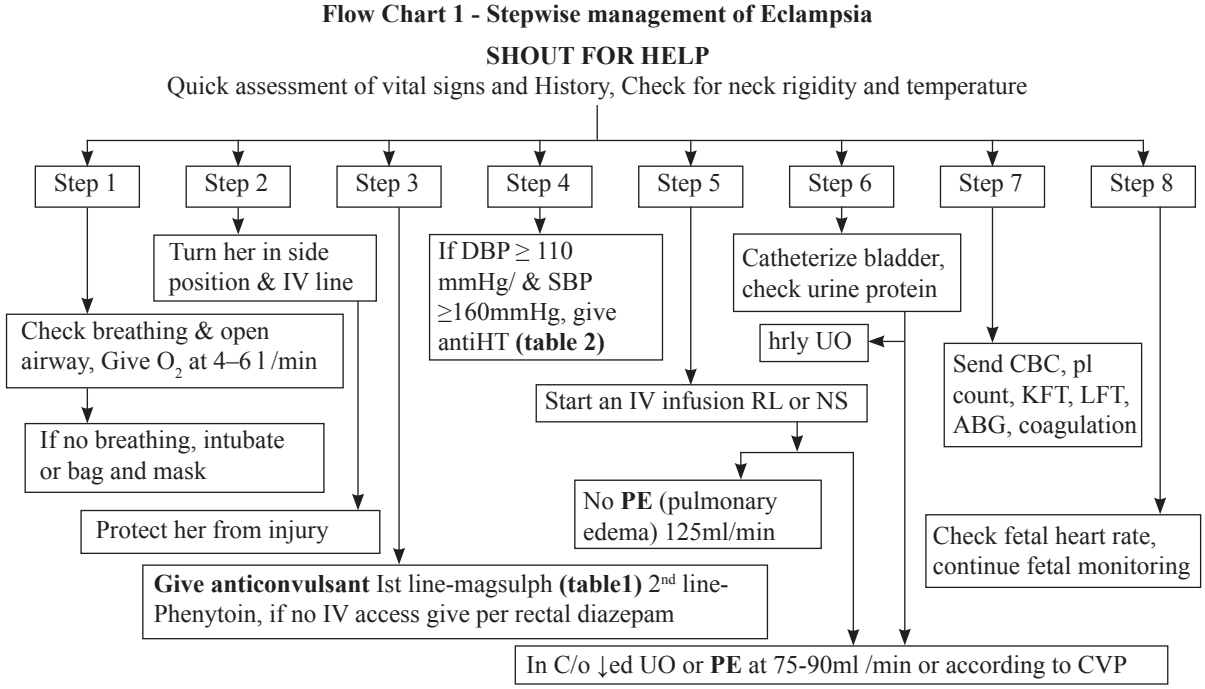

Table 1: Magnesium Sulphate Schedule

Loading dose
20% solution 4 g IV over 4-5 minutes
10 g of 50%, 5 g in each buttock
If convulsions recur give 2 g 20% IV
Maintenance dose
5 g (50% solution) IM 4 hrly for 24 hours after delivery or last convulsion
Before repeat administration, ensure
Respiratory rate is at least 16/min
Patellar reflexes are present
Urinary output ≥30 ml per hour
Withhold if any of above is absent

Table 2: Antihypertensive Drugs[3,4]

If BP ≥ threshold (DBP≥110mmHg or SBP ≥160mmHg)		
Option 1	Option 2	Option 3
Labetalol	Hydralazine	Nifedipine
20mg IV ↓ BP in 10 min BP ≥ threshold give 40mg IV ↓ BP in 10 min BP ≥ threshold give 80 mg IV ↓ BP in 10 min BP ≥ threshold give 10mg IV	5-10 mg IV ↓ BP in 20 min BP ≥ threshold give 10 mg IV ↓ BP in 20 min BP ≥ threshold give 20 mg IV ↓ BP in 10 min BP ≥ threshold labetolol 40mgIV	10 mg oral ↓ BP in 20 min BP ≥ threshold give 20 mg oral ↓ BP in 20 min BP ≥ threshold give 20 mg oral ↓ BP in 20 min BP ≥ threshold labetolol 40mgIV
BP still high; DBP≥110mmHg or SBP ≥160mmHg consult cardiologist and critical care unit, consider Nitroglycerine drip. When BP is DBP<110mmHg & SBP <160mmHg monitor BP every 10 min for 1 hr, F/b every 15 min X 1 Hr, F/b every 30 min X 1 Hr, then every Hr X 4 Hrs		

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REVIEW ARTICLE

Thrombophilias in Pregnancy: A Challenging Situation

Upma Saxena
Senior Specialist & Assistant Professor, Department of Obstetrics & Gynecology, PGIMER & Dr RML Hospital, New Delhi

Thrombophilias are **i**nherited or acquired predisposition to develop venous and arterial thrombosis, which usually manifest as either deep vein thrombosis or pulmonary embolism. Approximately 50% of gestational venous thromboembolism (VTE) is associated with thrombophilia. Antiphospholipid Syndrome (APS) predisposes pregnant women to increased risk of thrombosis and placenta-mediated pregnancy complications (RPL, IUGR, pre-eclampsia, placental abruption and fetal loss)[1]. Their prevalence in combined general population is over 15%. Thrombophilias are inherited in an autosomal dominant fashion and heterozygocity for FVL & PGV are most common. A meta-analysis of pooled data from 31 retrospective studies suggested that the magnitude of the association between inherited thrombophilias and fetal loss varies according to type of fetal loss and type of thrombophilia[2]. The pregnancy outcomes associated with different thrombophilias is shown in Table1.

Classification

Inherited Thrombophilias

- Factor V Leiden (FVL)
- Prothombin Gene variant (PGV)
- Protein C Deficiency (PC)
- Protein S Deficiency (PS)
- Antithrombin Deficiency (AT)

Acquired Thrombophilias

- Antiphospholipid antibodies
- Hyperhomocysteinemia
- Increased factor VIII

Indications for diagnostic evaluation for thrombophilias

Non-obstetric

- Family history of thrombophilia
- Family history with two or more first degree relatives with VTE
- History of venous thromboembolism

Obstetric

- Recurrent early pregnancy loss (3 or more losses < 10 wks)
- Unexplained fetal demise ≥ 10wks
- Early onset severe pre eclampsia and IUGR ≤ 34 wks
- Placental abruption leading to delivery

Table 1: Pregnancy Complications Associated With Different Thrombophilias

Pregnancy Complications	Thrombophilia (Inherited & Acquired
Early Pregnancy Loss	Homozygous FVL, Heterozygous PGV, Hyperhomocysteinemia, aPLs
Recurrent 1st Trimester loss	LAC, β2GP1, PGV
Recurrent 2nd trimester loss	Heterozygous for FVL/ PGV, aCL, β2GP1
Late pregnancy loss	PS, Heterozygous FVL/PGV
Pre-eclampsia	Hyperhomocysteinaemia, aCL, heterozygous FVL/PGV
Placental abruption	Heterozygous for FVL/ PGV
IUGR	aCL

Antiphospholipid syndrome (APS)

APS refers to an autoimmune condition characterized by presence of antiphospholipid antibodies (aPLs) eg. lupus anticoagulant, anticardiolipin antibodiy (IgG /IgM) and anti-β2 glycoprotein-1 (IgG /IgM) which are **diagnostic and pathogenic** resulting in thrombosis and adverse pregnancy outcome. Incidence of RPL in APS is 15-20% compared to 5% in women without adverse pregnancy outcome.

Sydney criteria for APS (2006)[3]: Diagnosis requires presence of at least 1 clinical and 1 laboratory criteria.

Clinical criteria:

1. Vascular thrombosis: A documented episode of arterial, venous, or small vessel thrombosis - other than superficial venous thrombosis with no significant evidence of inflammation.
2. Obstetric morbidity: Three or more unexplained consecutive spontaneous abortions before the 10th week of gestation, with maternal anatomic or hormonal abnormalities and paternal and maternal chromosomal causes excluded or one or more unexplained deaths of a morphologically normal fetus (documented by ultrasound or direct examination of the fetus) at or beyond the 10th week of gestation

or one premature birth of a morphologically normal neonate before the 34th week of gestation due to eclampsia or severe pre-eclampsia, or recognized features of placental insufficiency.

Laboratory Criteria:

To diagnose APS it is mandatory that the woman has two positive tests, at least 12 weeks apart for either of aPLs because their detection is subject to considerable inter-laboratory variation.

1. Anti-cardiolipin (aCL) IgG and/or IgM measured by standardized, non-cofactor dependent ELISA present in a medium or high titre.
2. Anti-β2 glycoprotein I (β2GP1) IgG and/or IgM measured by standardized ELISA; in a medium or high titre
3. Lupus anticoagulant (LAC)- Dilute Russell's viper venom time test together with a platelet neutralisation procedure is more sensitive and specific than either the activated partial thromboplastin time test or the kaolin clotting time test.

In women with APS, triple positivity conferred a risk of late fetal loss of 52.6% compared with loss of 2.2% when only 2 aPLs were positive. The presence of β2GP1 increases the risk of RPL from 6.8% to 22.2% compared with women with LAC or aCL.

The mechanisms by which aPL causes adverse pregnancy outcome are:

- Defective placentation due to defective trophoblastic invasion of endovascular deciduas[4].
- Local inflammatory response due to activation of complement pathways at the maternal–fetal interface
- Thrombosis of the uteroplacental vasculature leading to placental infarction in later pregnancy[5].

Management of APS in pregnancy

A meta-analysis[6] of RCT examined the outcomes of various treatments, including aspirin, steroids, intravenous globulin and heparin- given to improve pregnancy outcome of women with RPL associated with aPLs. Neither corticosteroids nor intravenous immunoglobulin therapy improve the live birth rate; their use may provoke significant maternal morbidity (PIH & GDM) and fetal morbidity (PTL & LBW). This meta-analysis reported that the only treatment or treatment combination that leads to a significant increase in the live birth rate among women with APS is aspirin plus unfractionated heparin. This treatment combination significantly reduces the miscarriage rate by 54%. RPL due to APS is preventable because success rate with Aspirin only and Aspirin & Heparin therapy is 44% and 78% respectively[7].

LMWH is preferred to UFH for most patients because of its better bioavailability, longer plasma-half life, more predictable dose response and improved safety profile with respect to heparin-associated osteoporosis and heparin induced thrombocytopenia (HIT)[8].

Hence, LMWH though costly is treatment of choice as once daily dosage makes outpatient treatment possible with no need for regular monitoring. The monitoring is done by anti Xa levels. Reversal with protamine is only partial. The UFH is monitored by aPTT and its action is fully reversed with protamine sulphate. Prophylactic dose of heparin should be given when there is no history of VTE and therapeutic dose if such history is present.

The mechanism by which heparin acts in APS is

Heparin benefits at a dose lower than required for clinical anticoagulation as it has an independent effect by the following mechanisms:

a) Binding to aPLs thus protecting trophoblast phospholipid from attack.
b) Decreasing complement mediated inflammation.
c) Improving implantation by promoting trophoblast invasiveness by increasing MMP.[9]
d) Modulating trophoblast apoptysis.

Guidelines for Management of RPL with APS without VTE[7]

- Aspirin (81mg) should be started before conception and discontinued 4wks before EDD. Should be restarted post delivery and given lifelong.
- Heparin started as soon as pregnancy test positive maximum till 37wks or till induction or elective LSCS
- *Dosage of Heparin according to maternal weight:*

<50kg	UFH-5000u BD;	LMWH Enoxaparin-20 mgOD	S/C
50-90 Kg	UFH-5000u BD;	LMWH Enoxaparin-40mgOD	S/C
>90Kg	UFH-7500u BD;	LMWH Enoxaparin-60mgOD or 40mgBD	S/C

- Long half life of LMWH with once daily dosage makes outpatient treatment feasible
- Daily Oral Calcium 1200-1500mg;Vit D 800-1000 IU
- USG at 7wks and 18-20wks
- USG with Doppler and BPP from 28-30 wks as 1/3rd develop IUGR
- If emergency then protamine sulphate (1%) slow IV 2.5mg to neutralize 1000 U UFH
- Prophylactic UFH should be stopped 6hrs and LMWH 12 hours prior to induction of labor or elective LSCS
- Postpartum LMWH OR UFH therapy should be recommenced within 12 to 24 hours of delivery and 2 hours after epidural catheter removal.
- Heparin restarted post delivery and continued 4wks postpartum
- Patient should not use estrogen-containing OCP

Inherited thrombophilias

Pre- conceptional counseling in inherited thrombophilia

- Uncertain association between inherited thrombophilia and placenta mediated pregnancy complications such as RPL, fetal demise, severe IUGR, Preeclampsia and abruption.
- There is definite risk of VTE
- Genetic counseling is not required as penetration variable
- Homozygous AT incompatible with life
- Homozygous PC&PS causes VTE in babies
- If family h/o particular thrombophilia then screen for all defects
- Partner should be screened if has serious thrombophilia like AT

Management of pregnancy complicated by inherited thrombophilia

Women with second-trimester miscarriage should be screened for inherited thrombophilias including FVL, PGV and PS.[10] PC and AT are not associated with fetal loss.

In the LIVE-ENOX trial[11], women with inherited thrombophilias and RPL were randomized to one of two doses of enoxaparin (40mg and 80mg per day), there was no significant difference in outcome between the two groups; however, the rate of live births was higher than might have been expected given the patients prior histories.

One prospective randomised trial[12] demonstrated the efficacy of the low-molecular-weight heparin enoxaparin for the treatment of women with a history of a single late miscarriage after 10 weeks of gestation who carry the FVL, PGV or have P S deficiency. The live birth rate of women treated with enoxaparin was 86% compared with 29% in women taking low-dose aspirin alone. Hence, heparin therapy during pregnancy may improve the live birth rate of women with second-trimester miscarriage associated with inherited thrombophilias.

Given the current lack of evidence to support an association between adverse pregnancy outcomes and inherited thrombophilia, it is currently not recommended to treat inherited thrombophilia with adverse pregnancy outcomes alone in mind.[13]

Thromboprophylaxsis is justifiable in women with known thrombophilia who are at 3-15 fold increased risk of VTE during pregnancy. A study[14] found that women with AT or homozygosity for FVL, as well as double heterozygotes, may need to be managed more aggressively than those with other inherited thrombophilias.

Postnatal thromboprophylaxsis for 7 days should be only given to all asymptomatic women with inherited thrombophilias (Except AT, combined and homozygous FVL /PGV)

Antenatal & postnatal (6wks) thromboprophylaxsis for maternal indications should be given in:

- AT
- Homozygous FVL / PGV
- Combined defect eg Heterozygous FVL & PGV
- Previous VTE + Thrombophilia
- Previous VTE+ Family h /o VTE
- Previous unprovoked or E associated VTE

Summary and key points

- All women with recurrent first-trimester miscarriage and all women with one or more second-trimester miscarriage should be screened before pregnancy for antiphospholipid antibodies.
- Treatment with heparin and aspirin is therapy of choice, with approximately 75% of treated women with RPL and aPL having successful delivery, compared with less than 30% without treatment.
- There are insufficient data on the effect of antenatal interventions in modifying the adverse pregnancy outcomes in women with inherited thrombophilias to provide any recommendations. Hence, treatment is still experimental or empirical.
- Treatment with Aspirin only or Aspirin with Heparin in RPL with inherited thrombophilia (unless maternal indication) is not evidence based and empirical treatment should be given after reviewing with the patient the limitations of available data, along with the potential benefits and harm of thromboprophylaxsis.
- Proper consent and counseling is very important while treating these patients.

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Screening and Management of Diabetes in Antenatal Period

Deepali Dhingra[1], Taruni Sharma[2], Ankita Jain[3], Jyotsna Suri[4]
[1]Senior Resident, [2,3]Post Graduate, [4]Senior Specialist & Assistant Professor
[1,2,4]VMMC & Safdarjung Hospital, New Delhi, [3]Apollo Hospital, Ludhiana

Diabetes mellitus is a disorder of carbohydrate metabolism, characterized by either inadequate secretion or inadequate action of insulin. India has the highest number of cases of diabetes in world. The trend follows in reproductive age group and pregnant population too. *Gestational diabetes mellitus (GDM) is defined as glucose intolerance of varying degree with onset or first recognition during pregnancy*[1], which compromises of 90% of all the women with diabetes in pregnancy. *Any carbohydrate intolerance present prior to pregnancy is pre-gestational Diabetes Mellitus type 1or type 2*. Abnormal maternal glucose regulation occurs in around 3-10% of pregnancies[2]

Pregnancy is diabetogenic state characterised by decreased insulin sensitivity and increased insulin resistance at peripheral tissues and thus higher plasma glucose to ensure adequate nutrition to fetus. Insulin resistance during pregnancy develops from a variety of factors, including alterations in growth hormone and cortisol secretion (insulin antagonists), human placental lactogen secretion (affects fatty acids and glucose metabolism, promotes lipolysis, and decreases glucose uptake) and insulinase secretion.

Maternal and fetal risks

Diabetes in pregnancy is associated with risks to the woman and to the developing fetus. Maternal morbidities associated with pre-gestational diabetes mellitus in pregnancy include pregnancy induced hypertension, pre-eclampsia, obstructed labour and shoulder dystocia. Pre-existing complications of diabetes such as diabetic retinopathy and diabetic nephropathy can worsen in pregnancy[3]. Stillbirth, congenital malformations, macrosomia, birth injury, perinatal mortality and postnatal adaptation problems (such as hypoglycaemia) are more common in babies born to women with pre-existing diabetes. Gestational diabetes is associated with fetal macrosomia, thereby increasing the risk of birth injury to mother and fetus.

Screening for diabetes mellitus in pregnancy

Screening for gestational diabetes remains controversial. *In recent times there has been a shift from two step test (glucose challenge test and glucose tolerance test) to one step test (75 gm GTT), which is used for both screening and diagnosis of diabetes in pregnancy*. At present, the American Diabetes Association[4], WHO(2013)[5] and the National Institute for Health and Clinical Excellence[6] recommend selective screening for gestational diabetes using 75 gram 2hr oral glucose tolerance test at 24-28 weeks. Earlier screening is recommended in the presence of risk factors. More recently, the IADPSG have adopted more stringent criteria based on the HAPO study[7]. Table 1 depicts the various criteria used to diagnose GDM.

Table 1: Various Criteria for diagnosing Gestational Diabetes Mellitus

75 gram oral glucose tolerance values	ADA[8]	NICE[6]	IADPSG[7]	WHO[5] (2013)
Fasting	92mg%	≥100mg%	92mg%	92-125mg%
1 hr	180mg%		180mg%	≥180 mg%
2 hr	153mg%	≥140mg%	153mg%	153 to 199 mg%

Diagnosis is made when one or more than one value is abnormal

Indian scenario (DIPSI)[9]

The DIPSI guidelines for screening of GDM, which have been extensively studied in the Indian population, are being followed in many parts of our country including our own institution. *Universal screening of all pregnant women is recommended for our country. The screening is advised on the first antenatal visit; if it is normal then it is to be repeated at 24-28 weeks and again at 32-34 weeks.*

In the antenatal clinic, a pregnant woman after undergoing preliminary clinical examination is given a 75 g oral glucose load, irrespective of her fasting status. As per the Diabetes in Pregnancy Study Group India (DIPSI)-Kolkata declaration 2010, a venous blood sample is collected at 2 hours for estimating plasma glucose. GDM is diagnosed if 2 hour plasma glucose is ≥ 140 mg/ dl. Values between 120-139mg/dl are termed as Gestational Glucose Intolerance (GGI).

Management

Pre-conception care

All patients with pre-existing diabetes should ensure that they enter pregnancy in an optimum state of health and

metabolic control. This helps to prevent the occurrence of congenital anomalies and the deterioration of maternal diabetic complications. Women with pregestational diabetes should have a pre-conceptional counselling and discussion regarding following:

- Achieving and maintaining a healthy body weight.
- The need for assessment of diabetic retinopathy and nephropathy before and during pregnancy.
- The increased risk of congenital defects, neonatal morbidity and perinatal mortality associated with diabetes and pregnancy
- The risk of hypoglycaemia and of hypoglycaemia unawareness in pregnancy.
- The importance of tight control in reducing the risk of congenital anomalies with an emphasis on achieving A1C <7%, if this can be achieved without hypoglycemia.[10]
- Potentially teratogenic medications (ACE inhibitors, statins, etc.) should be avoided
- Strongly advice against pregnancy if A_1C value is >10%[6].

Gestational diabetes mellitus

- Measure HbA1c levels in all women with gestational diabetes at the time of diagnosis to identify those who may have pre-existing type 2 diabetes[6].
- A total of 70 to 85% of women diagnosed with GDM under older criteria can control GDM with lifestyle modification alone.
- Advise women with gestational diabetes to take regular exercise (such as walking for 30 minutes after a meal) to improve blood glucose control.
- If initial fasting glucose is less than 126 mg/dl a trial of change in diet and exercise is advised.

Medical nutrition therapy (MNT)

It is the first line of management in gestational diabetes and is to be instituted in consultation with the dietician. Caloric recommendation based on pre-pregnancy BMI as shown in Table 2.

Table 2: Caloric requirement in pregnancy with diabetes

BMI	Calories/kg BW	Recommended weight gain
>25	25	7-11 kg.
20-25	30	11-16 kg.
<20	38	16-18kg

Single large meals and foods with a large percentage of simple carbohydrates are to be avoided. A total of 6 feedings per day are advised, with 3 major meals and 3 snacks to limit the amount of energy intake presented to the bloodstream at any interval. Examples include foods with complex carbohydrates and cellulose, such as whole grain breads and legumes.

Carbohydrates should account for no more than 50% (Preferably 35-45%) of the diet, with protein and fats equally accounting for the remainder.

Exercise

Patients with vascular involvement and risk of IUGR or patients who are at high risk for preterm labor should restrict to isometric exercises involving upper limbs while abdomen and lower limbs remain stationary.

All other patients can continue their prepregnancy exercises like:

i. Daily brisk Walking 2 – 3 kilometer per day
ii. Cycling –Treadmill 10-15 min/ Swimming

Heavy exercises like running and weight lifting are avoided.

No new exercise regime should be introduced and women should be taught to keep her hand on abdomen and palpate a contraction, which is an indication for stopping the exercise.

Patients who do not attain target levels (if at least four of seven fasting values exceed 90mg/dl) after 2 weeks, in early pregnancy and after 1 week in third trimester of diet and exercise regime, require insulin therapy.

Insulin therapy

A 24-hour insulin dose is calculated using- 0.7 units (U)/ kg in first trimester; 0.8 U/kg in second trimester; and 0.9 U/kg in third trimester. This formula works well for insulinopenic women; however in gestational diabetes the requirement is often very low.

Basic guidelines for insulin therapy in gestational diabetes.

- Determine the insulin regimen based on individual's glucose profile
- Patient is started on short acting regular insulin 4 units SC before each major meal and can be increased in increments of 1-2 units after 48 hours till desired levels are achieved.
- In case of fasting hyperglycemia start with 4-6 units NPH at bedtime.
- Once a control is achieved with rapid acting Insulin therapy, is changed to twice daily injections. $2/3^{rd}$ of the total required dose is given in the morning and one-third dose in the evening. Of this generally $2/3^{rd}$is NPH and $1/3^{rd}$ short acting Insulin.
- Dose is adjusted according to the blood sugar profile which is done 7 times a day, (before breakfast, lunch and dinner, 1or 2 hrs after breakfast, lunch and dinner and between 2am and 6am) and counterchecked by

lab values at least once a week or if any value >200 or <70 mg / dl.

- Patient is explained about symptoms of hypoglycemia and told to keep glucose powder handy.
- Patient can be discharged once control is achieved and advised to report once a week with her fasting and post prandial sugar values.
- The following glycaemic targets should be achieved: preprandial ≤95 mg/dL; and either one-hour postmeal ≤140 mg/dL or two-hour postmeal ≤120 mg/dL[11]

Pre-existing diabetes mellitus in pregnancy

A complete pre-conceptional counselling is advised. In addition to routine antenatal investigation screening of pre-existing complications i.e. renal and retinal should be done with kidney function tests and fundus examination. Retinal assessment by digital imaging with mydriasis using tropicamide is done following their first antenatal clinic appointment and again at 28 weeks[6]. HbA1c levels are measured in the second and third trimesters of pregnancy to assess the level of risk for the pregnancy[6].

These patients are already on insulin or oral hypoglycaemic (OHA) prior to pregnancy. All OHA except metformin and glibenclamide are not considered safe in pregnancy. If glycaemic targets can be maintained on these two drugs these can be continued otherwise insulin therapy is instituted as mentioned above. Type 1 diabetes mellitus has an increased risk of hypoglycemia in the first trimester. Frequent hypoglycemia can be associated with intrauterine growth restriction[10]. Type 2 diabetes is often associated with obesity thus recommended weight gain during pregnancy for overweight women is 6.8-11.3 kg and for obese women is 4.5-9 kg. The following glycaemic controls should be realised with type 1 or type 2 diabetes mellitus without increasing risks of hypoglycaemia: premeal, bedtime, and overnight glucose 60–99 mg/dL; Peak postprandial glucose 100–129 mg/dL; HbA1C <6.0%

Fetal monitoring

Apart from routine fetal monitoring in uncomplicated pregnancy, a detailed ultrasound scan for fetal anomalies, including examination of the fetal heart (4 chambers, outflow tracts and 3 vessels), at 20 weeks is advised in pre gestational diabetics. Fetal growth and amniotic fluid volume should be measured every 4 weeks from 28 to 36 weeks to rule out macrosomia and polyhydramnios[6].

Conclusion

Diabetes in pregnancy poses a challenge to the obstetrician, but timely screening and diagnosis followed by optimum glycaemic control is the key to achieving good maternal and fetal outcomes.

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Management of Diabetes in Labour

Deepika Singal[1], Jyotsna Suri[2], Ankita Jain[3]
[1]Senior Resident, [2]Senior Specialist & Asst Professor, [3]Post Graduate
[1,2]VMMC & Safdarjung Hospital, New Delhi, [3]Apollo Hospital, Ludhiana

Labour and delivery management of women with GDM can affect neonatal and maternal outcomes and hence it is of utmost importance to follow the established guidelines. Estimated fetal weight (EFW), both clinical and measured by ultrasound, maternal glucose control and gestational age are important factors to be considered in such pregnancies to decide the timing and mode of delivery. All these issues should be discussed with the pregnant diabetic women and their families, during antenatal appointments, especially during the third trimester.

Timing of birth

- Type 1 or type 2 diabetes and no other complications: Between 37+0 weeks and 38+6 weeks of pregnancy[1].
- Type 1 or type 2 diabetes with metabolic or any other maternal or fetal complication: Elective birth before 37+0 weeks[1].
- Gestational diabetes with no maternal or fetal complications: 40+6 weeks[1]
- Gestational diabetes if there are maternal or fetal complications: Elective birth before 40+6 weeks[1].
- Women with previous caesarean section: Diabetes should not in itself be considered a contraindication to attempting vaginal birth after a previous caesarean section[1].
- As per ACOG 2013 committee opinion women with gestational diabetes who have good glycemic control and no other complications can be treated expectantly. Most women with good glycemic control on medical therapy do not require delivery before 39 weeks' gestation[2].

Management during labour

Give all women information regarding what to expect during labour. Advise the women about the pain relief techniques and respect her wishes. Partographic management of labour is to be done.

Monitoring during labour

The hepatic glucose supply is sufficient during the latent phase of labour, but during the active phase of labour the hepatic glucose supply is depleted so calorie supplementation is required. The women with type 2 diabetes and gestational diabetes have adequate endogenous insulin production while women with type 1 diabetes have almost no endogenous insulin production. During the active phase of labor, the supplementation is mostly in the form of intravenous glucose as the oral supplementation is restricted.

On the other hand, avoiding intrapartum maternal hyperglycemia may prevent fetal hyperglycemia and reduce the likelihood of subsequent neonatal hypoglycaemia.

The rapid changes in glucose and the insulin requirement in labor mandate frequent monitoring of capillary sugars in these patients which should be done every 2-4 h during the latent phase, every 1-2 h during the active phase and hourly in patients on glucose infusion. *NICE guidelines advise," monitor capillary plasma glucose every hour during labour and birth in women with diabetes, and ensure that it is maintained between 4 and 7 mmol/litre (72-126mg/dl)". The American Endocrine Society also recommends maintenance of blood glucose between72-126 mg/dL (4.0-7.0 mmol/L)[3].*

Intrapartum glycemic management

The practical points of intrapartum glycaemic management of a diabetes patient on insulin and diet control are shown in the box below.

Intrapartum glycemic management

- Usual dose of intermediate acting insulin is given at bed time
- Morning dose of insulin is withheld
- IV infusion of NS is started.
- Once active labour begins, glucose levels are checked hourly. If glucose level falls below 70mg%, infusion is changed to 5% glucose and given at a rate of 2.5 mg/ kg / minute (100 to 125 ml/hr)
- Regular insulin is given by IV infusion(as per table) if glucose levels exceed 100 mg%
- If syntocinon is required, it should be given in NS by a separate IV line.
- Blood glucose by glucometer is monitored hourly.
- Urinary ketones are checked every 2 hrs.
- **Patients of GDM on diet control should take soft diet in latent phase and clear fluids in active stage. Avoid IV infusion of Dextrose in these patients. Blood sugar to be monitored hourly initially 1-2 times and if normal, 4 hourly**

Fluid and insulin management in labour

The fluid and insulin requirement during labour are summarized in Table1. Insulin can be administered through the syringe infusion pump (add 50 units of insulin to 50 ml of saline) (Table 1) or can be given subcutaneously according to levels of glucose (Table2)

Table 1: Fluid and insulin (by infusion pump) requirement during labour

Blood glucose (mg/dl)	Insulin (u/hr) through syringe infusion pump	Fluid 125ml/hr
<100	0	DNS
100-140	1	DNS
141-180	1.5	NS
181-220	2.0	NS
>220	2.25	NS

Table 2: Subcutaneous administration of insulin during labor

Blood glucose (mg/dl)	Insulin (u) given by subcutaneous route
140-180	2
181-250	4
251-400	6
> 400	8

As per NICE guidelines, intravenous dextrose and insulin infusion should be considered for women with type 1 diabetes from the onset of established labour. They also recommend use of intravenous dextrose and insulin infusion during labour and birth for women with diabetes whose capillary plasma glucose is not maintained between 4 and 7mmol/litre[1].

Management during Caesarean section

Indications for elective caesarean section

- Estimated fetal weight >4000gms (if EFW is 3.5 to 4 kg, pelvic assessment to be done by specialist).
- Abnormal presentations
- Untreated proliferative retinopathiy
- Any other obstetric indication

Fluid and insulin requirement in peri-operative period:

- Morning dose of insulin is omitted.
- Send blood glucose and electrolytes on night before surgery and next morning.
- Give prophylactic dose of antibiotic.
- Start NS infusion
- Patient is taken as the first case in OT at 9 am.
- If surgery is delayed it is needed to start basal and corrective regimen (DNS with short acting insulin) with one-third of the morning intermediate insulin dose with a 5% dextrose infusion to avoid ketosis
- After extraction of the baby, IV dextrose is given and blood glucose is monitored by glucometer every 10 min.
- Insulin is to be given only if glucose level is >200mg%
- Postoperatively IV infusion is given with Ringer lactate, normal saline and neutralizing dextrose solution (KGI – 10 units insulin in 1000 cc. 5% dextrose and 10 mEq potassium)

Post natal care

- Women with insulin-treated pre-existing diabetes should reduce their insulin immediately after birth and their blood glucose levels should be monitored carefully to establish the appropriate dose. Insulin dose needs to be decreased by 20-40% of the pregnancy dose as the requirement of insulin during lactation is less.[1]
- Women with pre-existing type 2 diabetes who are breastfeeding can resume or continue to take metformin and glibenclamide immediately after birth, but should avoid other oral blood glucose-lowering agents while breastfeeding.[1]
- Women who have been diagnosed with gestational diabetes should discontinue blood glucose-lowering therapy immediately after birth.[1]
- Women with diabetes who are breastfeeding should continue to avoid any medicines for the treatment of diabetes complications that were discontinued for safety reasons in the preconception period.

Conclusion

A strict glycaemic control during labour with glucose values between 72-126 mg/dl goes a long way in optimizing the maternal and fetal outcomes.

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CLINICAL UPDATE

Thyroid Disorders in Pregnancy

Sunita Yadav[1], Archana Mishra[2]
[1]Senior Specialist, [2]Assistant Professor, Department of Obstetrics & Gynaecology, VMMC & Safdarjung Hospital, New Delhi

Thyroid disorders are emerging as one of the most common endocrine problems seen during pregnancy. About 2-5% of pregnant women suffer from thyroid disorders. Thyroid functions in pregnancy are altered due to the influence of human chorionic gonadotropin (HCG) and estrogen.

Physiology of thyroid gland in pregnancy

- There is increase in the size of thyroid gland by 10-40%, due to increased vascularity and glandular hyperplasia, but there is no significant thyromegaly and hence any goitre should be investigated.
- Demand of iodine increases by 50% due to increased renal blood flow and glomerular filtration rate and hence increased renal excretion. In iodine deficient women due to poor intra-thyroidal reserves, hypothyroidism and goitre may develop.
- Recommended iodine intake in non pregnant is 150ug/day and in pregnant and lactating women it is 250ug/day. Iodine rich food includes sea food, cow's milk and eggs.
- Increase in levels of thyroid binding globulin (TBG) starts early in first trimester mainly due to increased estrogen and concentration increases 3 times by 20 weeks.
- Serum TSH falls in pregnancy due to the stimulating effect of HCG on the TSH receptors. The fall starts early in first trimester and normal values may be as low as 0.03mIU/ml or even undetectable. Recently TSH of 2.5mIU/ml has been accepted as the upper limit of normal in first trimester. The lower normal level in first trimester is poorly defined.
- Production of T4 and T3 increases by 50%. In humans T4:T3 ratio in blood is roughly 20:1; T4 is converted into the active T3 within cell by de-iodinases.
- Most thyroid hormone is bound to proteins (TBG-70%, albumin-20%).
- After 14 weeks of gestation, the fetus which till now was dependent on placental transfer of maternal thyroid hormones starts producing its own T3 and T4. This self sufficiency protects it against the abnormalities caused by maternal hypothyroidism. However it remains dependent on mother for iodine required to make thyroid hormones.
- Normal levels of thyroid hormone are essential for neuronal migration and myelination of the fetal brain. Iodine deficiency is the leading cause of preventable intellectual deficit and mental retardation worldwide.
- There is reduction in Th-1 cell mediated immunity and antibody production in pregnancy. This change in immune system is responsible for remission of many autoimmune disorders like Grave's disease and Hashimoto's thyroiditis. These may relapse in postpartum period. Decrease in levels of TPO-Ab, thyroglobulin antibody and thyroid receptor antibody (TR-Ab) is seen in almost all patients as pregnancy progresses.

Hypothyroidism in pregnancy

Hypothyroidism is still prevalent in India despite the adoption of universal salt iodization programme in 1983.Thyroid disorders are no longer confined to sub Himalayan zone but have extended to the plain fertile lands. Besides iodine deficiency, autoimmunity appears to play an important etiological role. Prevalence of overt hypothyroidism during pregnancy ranges from 0.2- 0.5% whereas for subclinical hypothyroidism it is from 2- 7%. Thyroid antibodies are present in as high as 60% of women in reproductive age group.

Thyroid screening in pregnancy (universal vs high risk)- Indian Thyroid Society recommends universal screening at first visit by TSH level. Ideally screening should be carried out during pre pregnancy evaluation or as soon as pregnancy is confirmed. ***Overt hypothyroidism*** *is defined as:* TSH >10.0 mIU/ ml irrespective of Free T4 level or TSH >2.5 mIU /ml with decreased Free T4; ***Subclinical hypothyroidism (SCH) is****:* TSH 2.5 to 10 mIU /ml with normal Free T4

The adverse pregnancy outcomes with hypothyroidism include miscarriages, gestational hypertension, placental abruption, anaemia, premature birth, low birth weight, mental retardation and increased fetal mortality. Impact of subclinical disease is an area which is under intense scrutiny these days and at present majority of high quality evidence suggests that SCH is associated with increased risk of poor pregnancy outcomes and possible neuro- cognitive deficits in the fetus.

Diagnosis

- Symptoms are non specific and can often be confused with those of normal pregnancy. Symptoms like cold intolerance and bradycardia are more specific. Thyroid function test is done to make the diagnosis. Thyroid antibodies may be done to confirm Hashimotos thyroiditis, which is the most common cause of hypothyroidism in pregnancy.
- Due to raised TBG levels in pregnancy, serum T4 levels are elevated. The normal non pregnant T4 range (5- 12 ug/dl) should be multiplied by 1.5 to get ranges for second and third trimester[1].
- Serum FT4 levels are frequently done as T4 levels are altered by TBG levels. However the Endocrine Society (USA) recommends caution in interpreting FT4 values in pregnancy and that each lab should establish trimester and method specific reference ranges for pregnant women. The FT4 index is also mentioned as a reliable investigation[1].

Management

All cases of overt hypothyroidism should be treated with oral levothyroxine(LT4) 1.6-2.0 ug/kg/day. Reassess TSH levels after 4-6 weeks and increment of 25-50 ug are made at one time. Oral LT4 is advised to be taken 45 minutes before breakfast, empty stomach. In addition milk, iron, calcium, vitamin tablets and proton pump inhibitors should be avoided within 4 hours of ingestion. Thyroid function should be repeated after 30 days of starting treatment and then repeated 4-6 weekly[1].

Indian Thyroid Society recommends thyroxine treatment in all cases of subclinical hypothyroidism in pregnancy irrespective of anti TPO Ab status. The goal is to maintain TSH levels less than or equal to 2.5 mIU/ml in first and 3.0 mIU/ml or less in 2nd and 3rd trimester[2].

Recommended TSH levels in pregnancy are as follows:

1st trimester-0.1- 2.5MIU/ml

2nd trimester-0.2-3.0mIU/ml

3rd trimester-0.3-3.0 mIU/ml

Patients with preexisting hypothyroidism in whom thyroid assessment cannot be done immediately should have their LT4 dose increased by 30% as soon as pregnancy is diagnosed (2 additional tablet/ week i.e. 9 tab / week instead of 7). Post delivery the dosage of LT4 is reverted back to prepregnant value and TSH rechecked after 6 weeks. Euthyroid patients with raised anti TPO antibodies are at risk of developing hypothyroidism and should get TSH checked in every trimester. *Isolated hypothyroxinemia in pregnancy*, when is TSH normal but FT4 in lower (5th- 10th percentile reference range)- treatment is not recommended as per American Thyroid Association[3]. *There are no recommendations for termination of pregnancy even if the women are found to be severely hypothyroid at any stage of pregnancy.*

Hyperthyroidism in pregnancy

The prevalence of hyperthyroidism in pregnancy is about 0.2%. Hyperthyroidism is associated with poor maternal and fetal outcomes- miscarriage, PIH, prematurity, low birth weight, fetal growth restriction, stillbirth, thyroid storm and congestive heart failure in mother.

Overt hyperthyroidism, refers to when TSH < 0.1 mIU/ml or undetectable and elevated total T4 or FT4 or free T4 index; ***Subclinical hyperthyroidism*** is if TSH below reference range but normal FT4 levels. The most common cause of overt hyperthyroidism in pregnancy is Grave's disease. More frequent than Grave's disease is syndrome of "Gestational hyperthyroidism"(GH) limited to first half of pregnancy. GH is secondary to elevated HCG levels. It may be associated with hyperemesis gravidarum. Other conditions associated are multiple gestation, H.mole and choriocarcinoma.

Diagnosis

- Clinical features of hyperthyroidism are hand tremors, anxiety, palpitation and heat intolerance.
- Signs of Graves disease are associated goiter and endocrine opthalmopathy.
- TSH levels and FT4 is diagnostic.
- Thyroid receptor antibody (TR Ab) can be done, which is positive in Graves disease.
- Total T3 determination is helpful in diagnosing T3 thyrotoxicosis caused by Graves disease.

Management

Gestational hyperthyroidism does not require antithyroid drugs, as serum T4 returns to normal by 14-18 weeks. In significantly thyrotoxic patients, beta blockers may be used for short period (4-6 weeks) at a dose of- 20-40 mg BD/TDS for propronolol ; 50-100 mg/ day of atenolol.

Subclinical hyperthyroidism is not associated with adverse pregnancy outcomes and does not warrant treatment.

- Overt hyperthyroidism should be treated with anti thyroid drugs. The commonly used drugs are thionamides-propylthiouracil (PTU), methimazole (MMI) and carbimazole. These drugs block the synthesis but not the release of thyroid hormones hence clinical response is not immediate. All of them cross the placenta. Dose is adjusted with the goal of maintaining FT4 at or just above the upper limit of non pregnant reference range so as to

avoid fetal hypothyroidism.TSH and FT4 are to be measured every 2-4 weeks initially and then every 4-6 weeks. The drugs are prescribed as-PTU 100-150mg/8 h; MMI 20 mg and carbimazole 15 mg, in divided doses. PTU is the drug of choice during first trimester as MMI may be associated with congenital anomalies. MMI embryopathy comprises of, aplasia cutis, choanal or esophageal atresia and dysmorphic facies. PTU may rarely be associated with severe liver toxicity. Hence it is recommended to change from PTU to MMI after first trimester[1]. Monitor LFT every 3-4 weeks in patients on PTU. Agranulocytosis is rarely seen, presenting as sore throat and fever; hence leukocyte count should be done before starting treatment. After control of thyrotoxicosis, PTU dose should be decreased and patient should be maintained on as low a dosage as possible, preferably<100 mg/day. Medication should be continued during lactation as there is minimal excretion of drug in breast milk. *Radioiodine is contraindicated in pregnancy and patient should attempt pregnancy only after three months of completion of the therapy.*

Role of subtotal thyroidectomy

- patient has adverse reaction to ATD
- persistently high doses of ATD required (>30 mg / day of MMI or >450 mg/day of PTU)
- noncompliance or uncontrollable hyperthyroidism
- timing of surgery- 2nd trimester

Fetal hyperthyroidism

Seen in 1-5% of pregnancies with active or inactive Graves disease. It is usually caused by trans-placental passage of thyroid receptor antibodies (TRAb) which stimulate fetal thyroid. Signs of hperthyroidism in fetus on ultrasound are-fetal tachycardia>170 persistent for over 10 min; IUGR; fetal goiter-is earliest sign; accelerated bone maturation; signs of CHF and fetal hydrops.

Measurement of thyroid receptor antibodies (TRAb) by 22 weeks is recommended in the following conditions:

- Current Grave's disease
- History of Graves disease and treatment with 131-I or thyroidectomy before pregnancy (antibodies continue to be produced even after ablation by radioiodine or surgery)
- Previous neonate with Grave disease
- Previously elevated TRAb
- If TRAb levels or thyroid stimulating Ig elevated more than 2 fold; or in females on antithyroid drugs-screen maternal FT4 & fetal thyroid function at 18-22 weeks and then every 4-6 weeks.
- TRAb normally show a decline starting at about 20 weeks.

Postpartum thyroiditis

Can present as hypothyroidism, hyperthyroidism & or hyperthyroidism followed by hypothyroidism in first year postpartum without overt thyroid disease before pregnancy. It has a prevalence of 1.1-16.7%. Hyperthyroidism in postpartum period could be due to postpartum thyroiditis or Graves disease. Postpartum thyroiditis is more common and can be distinguished from Graves by the absence of exophthalmos, bruit, or TSH receptor antibody.

Anti-TPOAb positive females and those with Type 1 DM are at high risk and should have a TSH level at 3 and 6 months post partum. Women with postpartum depression should also be screened for hypothyroidism and appropriately treated.

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CLINICAL REVIEW

Chronic Kidney Disease and Hemodialysis in Pregnancy: A Ray of Hope

Sunil Prakash
Director, Head of Nephrology and Renal Transplant Service, BLK Superspeciality Hospital, New Delhi

It is profoundly difficult for a young woman to accept having chronic kidney disease in her reproductive years. Till very recently, the occurrence of pregnancy in patients with chronic kidney disease (CKD) was considered a dangerous event both for mother and the foetus. However, recent literature brings out better and safer outcomes. In pregnancy one can encounter either a pre-existing CKD and/or other renal diseases acute kidney injury (AKI) as a consequence of pregnancy. This difference is of great therapeutic and prognostic significance.

Renal physiological changes during a normal pregnancy

The glomerular filtration rate (GFR) increases by about 50% in pregnancy. This hyperfiltration leads to increased secretion of nitrogenous waste. Hence, a pregnant woman has decreased levels of blood urea nitrogen (BUN) and serum creatinine. *A serum creatinine greater than 0.6 mg% and BUN more than 13 mg/dl in pregnancy signifies that the patient has renal insufficiency.*

Pathological aberrations in CKD patient

- During the follicular phase, follicular stimulating hormone (FSH) levels are comparable to or slightly lower than those in normal persons, whereas luteinizing hormone (LH) levels are elevated. Both progesterone and estradiol levels are extremely low and prolactin levels are higher.
- Increased association of hypothyroidism
- Lack of libido due to medications, anemia, fatigue and depression

There are three questions that need to be addressed when a woman with underlying kidney disease becomes pregnant:

A. What is the effect of pregnancy on the kidney disease?
B. What is the effect of the kidney disease on pregnancy?
C. What is the foetal outcome?

A. Effect of pregnancy on kidney disease

Factors worsening renal function in pregnancy include:

1. Hypertension is a major risk factor for permanent exacerbation of underlying renal disease.
2. Elevated plasma creatinine concentration (above 1.5 mg/dl)
3. Aetiological cause and severity of renal disease at the time of conception
4. Infections such as urinary tract infection (UTI), pyelonephritis and sepsis

The risk of an irreversible loss of GFR may exceed 50 percent in patients who also have uncontrolled hypertension. In mild CKD with serum creatinine less than 1.5 mg%, pregnancy is relatively safe; however it can cause permanent decline in renal function in about 0 - 10 % patients. In women with moderate renal insufficiency with initial plasma creatinine above 2.0 mg/dl, the risk of acceleration of kidney disease was 33%. Women with an initial serum creatinine level equal to or higher than 2 mg/dl experienced a significantly higher incidence of preterm delivery, preeclampsia and accelerated decline in renal function during or immediately after pregnancy[1]. Imbasciati et al recently analyzed women with stages 3–5 CKD and found no difference in the GFR before and after delivery in the entire cohort of women with a serum creatinine level of 1.5 mg/dl[2].

The type of kidney disease is important as accelerated progression may be more likely in MPGN, FSGS and reflux nephropathy. However, most investigators now believe that aetiology (other than lupus nephritis) is probably not a major determinant of worsening renal disease. It is the stage of CKD which defines outcomes.

Contraception

Intrauterine devices have the disadvantage of infection risks, which are believed to be higher in dialysis patients. Hormonal contraception is unsafe in patients with active immunologic disease. Barrier methods have low reliability, yet are safe and are commonly prescribed. A tailored approach is crucial in this delicate situation.

Medical termination of pregnancy

In pregnant CKD patient with serum creatinine of about 1.5 to 2 mg%, MTP is no safer than continuation of pregnancy. Hence pregnancy may be continued, especially in a woman who is desirous and understands all complications and outcomes.

B. Effect of the kidney disease on pregnancy

CKD is associated with higher rates of adverse maternal outcomes. In a meta-analysis of 13 cohort studies, pregnant women with pre-existing renal impairment were significantly more likely to develop gestational hypertension, preeclampsia, eclampsia or death (12% versus 2 %). Maternal mortality was more frequent in those with CKD (4% versus 1 %) [3]

D/D from preeclampsia: In CKD, hypertension and proteinuria may be present in second trimester where as preclampsia is more common in third trimester along with rapid worsening. Preeclampsia is also associated with HELLP syndrome.

C. Foetal survival

Intrauterine deaths and preterm infants are the most common complications. The incidence of preterm delivery is very high ranging from 67% to 100%**.** Polyhydramnios has an incidence ranging from 18 to 100%. Respiratory distress syndrome was reported as a complication, the prevalence ranging from 14 to 80%. Overall figure obtained by pooling multiple study reports 90 conceptions in 78 dialysis patients. There were 61 surviving infants of 80 pregnancies. There were 10 elective abortions[4]. Higher incidence was noted for intrauterine growth restriction (5% versus 0%), small for gestational age (14% versus 8%) and stillbirth (5% versus 2%).

Foetal survival is lower when hypertension is uncontrolled. The relative risk of foetal death has been estimated by Jungers and Chauveau [5] to be approximately 10-fold higher in women with a mean arterial pressure >105 mmHg at conception, compared with those with spontaneous or therapeutically achieved normotension.

Obstetrical management of parturients with underlying renal disease

Patients with renal disease should be monitored jointly by an obstetrician and a nephrologist throughout the course of pregnancy. General principles of management include the following:

- Increased frequency of prenatal visits; these should occur every two to four weeks, depending on the stability of the clinical condition, until the third trimester and then weekly.
- Early detection and treatment of asymptomatic bacteriuria.
- Serial monitoring (every four to eight weeks) of maternal renal function.
- Close monitoring for the development of preeclampsia.
- Foetal surveillance with ultrasound and foetal heart rate monitoring to assess foetal growth and well-being.
- Appropriate treatment of maternal hypertension. Maintain diastolic blood pressure between 80 and 90mmHg
- Avoid hypotension and volume depletion. Rising serum uric acid is a good marker for volume depletion.
- Preterm intervention may be necessary in the presence of deteriorating renal function, severe preeclampsia, foetal growth restriction, or foetal distress. In most women, elective delivery is indicated if labour has not occurred by the estimated date of confinement.

Which anti hypertensive drugs to use in pregnancy?

- Methyldopa, hydralazine and calcium channel blockers are safe and most frequently used.
- ACEi and ARBs are contra indicated due to foetal toxicity of these drugs.
- Use beta blockers and diuretics with caution**.**

Pregnancy in patients on dialysis

Incidence of pregnancy has been documented to range from <1% to approximately 7%, in patients on dialysis[6]. Pregnancy in a patient on dialysis was earlier considered unthinkable and we all have been advising our patients to avoid it at all costs. However, the growing number of reports worldwide of successful outcomes behove on us that we should reconsider our counselling policy.

Aggressive management have resulted in an enhanced frequency of live births being reported from 40% to 86 % of all pregnancies in dialysis patient[7].

Important considerations during intensive dialysis include:

- Minimum of 24 hours per week of dialysis should be given. During dialysis in a pregnant patient all measures aimed at preventing dialysis-induced hypotension should be taken. Maternal haemodynamic instability may compromise the uteroplacental circulation and may be associated with induction of uterine contractions.
- Higher erythropoietin doses may be needed to maintain the patient's haemoglobin.
- Critical attention to nutritional considerations and proper weight gain are essential for a successful pregnancy. Although the recommended weight gain in the second and third trimesters is between 0.3 to 0.5 kg per week, it is difficult to distinguish excess fluid gained between dialysis sessions from that due to pregnancy-associated weight gain.

- Successful pregnancies in patients on peritoneal dialysis have been reported to be fewer than in those on haemodialysis. The former has its own advantages and disadvantages.

Recommendations for optimising the treatment of pregnant women on haemodialysis[7]

1. Coordination between gynaecology, nephrology, and nutrition departments.
2. Management of the pregnancy in specialised gynaecological units for high-risk pregnancies, with a neonatal intensive care unit.
3. Optimum blood pressure control.
4. Prevent metabolic acidosis.
5. Intensify dialysis treatment:
   - Increase the frequency of dialysis sessions (5-7 per week).
   - Maintain a predialysis urea below 45-50mg/dl.
6. Use the minimum possible dose of heparin.
7. Use biocompatible membranes and avoid sterilization with ethylene oxide.
8. Calcium/phosphorous metabolism:
   - Avoid hypocalcaemia and hyperphosphataemia.
   - If necessary, use calcium chelating agents. Avoid post-dialysis hypercalcaemia.
9. Anaemia:
   - Provide iron and folic acid supplements.
   - Adjust erythropoietin dosage.
   - Maintain haemoglobin at 10-11g/100ml and haematocrit at 30%-35%.
10. Nutrition:
    - Protein intake of 1-1.2g/kg pre-pregnancy weight/day +10-20g/day for dialysis losses[7].

Pregnancy in post renal transplant patient

- Fertility improves after renal transplantation. However, pregnancy and live birth rates are far lower in female transplant recipients than in the general population.
- Pregnancy has little or no effect on renal function in the transplant patient, provided baseline renal function is close to normal. *Women are advised to wait at least one year after living donor transplantation and two years after deceased transplantation to avoid complications arising from transplant medications and increased risk of rejection*. There are also higher risks of infections. The renal allograft should be functioning well, with a stable serum creatinine level <1.5 mg/dl and 24 hour urinary protein excretion <500 mg/day.

Acute Kidney Injury (AKI) in pregnancy

- Causes of AKI in early pregnancy (before 20 weeks) include pre renal disease due to hyperemesis gravidarum and acute tubular necrosis (ATN) resulting from a septic abortion or other bacterial and viral infections.
- Causes of AKI in late pregnancy (after 20 weeks) include preeclampsia, thrombotic thrombocytopenic purpura-haemolytic uremic syndrome (TTP-HUS), acute fatty liver of pregnancy (AFLP), acute tubular necrosis (ATN) or acute cortical necrosis, acute pyelonephritis and rarely, urinary tract obstruction.

How to investigate pregnancy-associated AKI?

A very high index of suspicion and quick decision making leads to good outcomes in this potentially catastrophic situation.

- Renal ultrasound
- Urinalysis and microscopic analysis of sediment
- Quantify total urinary protein excretion by either 24-hour urine collection or by spot urine protein-to-creatinine ratio
- Urine culture and sensitivity (Urine r/m has about 19% false negative values for UTI. Hence urine c/s is recommended in pregnancy)
- CBC with peripheral blood smear examination
- Liver function tests
- If indicated, serum haptoglobin, serum lactate dehydrogenase (LDH)

Special situations

Systemic Lupus Erythematosis (SLE)

Despite significant improvements in the survival of the mother and the foetus in the last few years, pregnancy with SLE has many pitfalls.

- SLE is characterized by normal fertility that can be affected by treatment (e.g. cyclophosphamide)
- Pregnancy in SLE may be associated with hypertension, preeclampsia, thromboembolism and foetal loss
- Maternal mortality is more than 20-fold higher compared to the healthy population, with an odds ratio of 1.7 for Caesarean section and 3.0 for preeclampsia
- Renal flares during pregnancy seem to occur when the disease is active at the time of conception [33, 36]
- Another important consideration is the class of lupus nephritis. Classes III and IV are associated with hypertension and renal function worsening

Hence, SLE activity should be monitored at least for 6 months before conception. Pregnancy should be planned only if disease is quiescent with no signs of active lupus nephritis.

First report of a successful pregnancy in dialysis dates to 1971, yet even in 2015 it remains a path less trodden. *We should be more supportive, educative and give these patients a multi disciplinary approach to bring about successful outcomes from motherhood.*

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AOGD Annual Conference

37th Annual Conference of AOGD on 31st October and 1st November, 2015 at India Habitat Centre, Lodhi Road, New Delhi
www.aogd.org

AOGD Clinical Meetings

Next Clinical Meeting of AOGD on Thursday 24th September, 2015 at PGIMER Auditorium, RML Hospital, New Delhi

FORTHCOMING EVENTS

- **Urogynaecology Workshop** "Conservative Management of SUI- Pessary, Biofeedback PFMT" by Urogynaecology Subcommittee of AOGD on 4th September, 2015. Safdarjung Hospital, New Delhi
- **CTG Workshop "**Understanding Electronic Fetal Monitoring" under AOGD Fetal Medicine and Genetic Subcommittee between 01:00pm-05:00pm on 5th September, 2015 at Auditorium Max Super Speciality Hospital, Saket, New Delhi
- **CME on Menopause** by EDGF under aegis of AOGD on 8th September, 2015 at Lemon Tree Hotel, Ghaziabad
- **CME on Recurrent Pregnancy Loss** in association with Safe Motherhood Committee of AOGD on 12th September, 2015 at Hindu Rao Hospital, Delhi
- **CME on Fertility Preservation in Breast Cancer** under Breast Cancer Prevention Committee of AOGD on 12th September, 2015 at Apollo Hospital, New Delhi
- **Guest Lecture by Dr Fadi Mirza** "Current Updates and Controversies in Progesterone usage in Early Pregnancy" between 07:00pm-09:00pm on 16th September, 2015
- **CME** organised by Multi Disciplinary Patient Management sub committee in association with North Zone AICC RCOG between 03:00pm-05:00pm on Saturday, 19th September, 2015 at Indraprastha Apollo Hospital. Inform by 14th for registration (Free)
- **Full Day CME** "Common Gynaecological Disorders and Fetal Medicine'' Under Aegis of AOGD on 20th September, 2015 at Max Super Speciality Hospital, Saket, New Delhi
- **Outreach Programme** for "Comprehensive Women's Health" on 22nd September, 2015 by Dr Poonam Chawla in West Delhi
- **Workshop** "Current Concepts in Cervical Cancer Screening & Hands on LEEP" by ISCCP & Oncology Subcommittee of AOGD on 26th September, 2015 at Sant Parmanand Hospital, Delhi
- **One Day, FOGSI Gestosis Certificate Course** on "Hypertensive Disorders in Pregnancy" between 10:00am-04:00pm on 27th September, 2015 at Hotel Royal Plaza, Ashoka Road, New Delhi. For details contact AOGD office at 011-26714473
- **Eighteenth PG Practical Course and CME** on 9th, 10th & 11th October, 2015 at MAMC Auditorium, Bahadur Shah Zafar Marg, New Delhi. www.mamc.ac.in
- **FERTIVISION 2015-** 11th Annual National Conference of IFS on 4th-6th December, 2015 at Hotel Ashok. www.indianfertility society.org

CLINICAL UPDATE

Jaundice in Pregnancy: A Challenge for the Clinician

Manisha Bais Thakur[1], Rujul Jain[2], Rekha Bharti[3], Kashika[4]
[1]Senior Medical Specialist and Associate Professor, [2]Postgraduate Student, [3]Assistant Professor, [4]Senior Resident
[1,2]Department of Medicine, [3,4]Department of Obs & Gynae, VMMC & Safdarjung Hospital, New Delhi

Occurrence of jaundice in pregnancy is not very uncommon but presence of jaundice can adversely affect the clinical course of pregnancy and its outcome resulting in increased fetal mortality and morbidity. Liver disease in pregnancy usually occurs during third trimester of pregnancy or immediately after delivery.

Physiological changes in liver function tests during pregnancy

Pregnancy may normally induce appreciable changes in some of the tests to assess liver function. Total and free bilirubin concentrations remain unchanged or are lower than those in non pregnant controls during all three trimesters. Serum levels of alaninetransaminase (ALT) and aspartatetransaminase (AST) have been found to remain within normal limits during pregnancy. Serum alkaline phosphatase increases throughout pregnancy to as much as two times the upper limits of normal as a result of placental production. Plasma albumin levels are decreased as a result of increasing plasma volume. Total bile acid concentrations usually remain within normal limits. Hence, increased values of serum ALT, AST, bilirubin and fasting total bile acid concentrations should be considered pathologic and prompt further evaluation.

Diagnosis of liver disease in pregnancy

When a pregnant patient comes with jaundice, proper history taking is very important which includes:

- Period of gestation
- Pruritis
- Nausea and vomiting
- Abdominal pain
- Fever
- Easy bruisability
- H/o previous pregnancies and their outcome
- Intake of oral contraceptives earlier

Diagnostic tests

- Tests for hepatitis A,B,C & E
- Routine blood chemistries and blood counts
- Tests for hemolysis
- Tests to rule out DIC (low fibrinogen, elevated thromboplastin time in HELLP syndrome)
- Endoscopy & ERCP
- Abdominal Ultrasound
- Abdominal CT
- MRI

Differential diagnosis of liver diseases in pregnancy

First Trimester	
Liver disease unique to pregnancy	- Hyperemesis gravidarum
Occurring more commonly with pregnancy	- Cholesterol gallstones
Occurring co-incidentally with pregnancy	- Viral hepatitis
Second Trimester	
Occurring more commonly with pregnancy	- Cholesterol gallstones - Herpes Simplex hepatitis
Occurring co-incidentally with pregnancy	- Viral hepatitis
Third Trimester	
Liver disease unique to pregnancy	- Intrahepatic cholestasis of pregnancy - Acute fatty liver of pregnancy - Pre-eclampsia related liver disease
Occurring more commonly with pregnancy	- Cholesterol gallstones - Herpes Simplex hepatitis
Occurring co-incidentally with pregnancy	- Viral hepatitis

Hyperemesis gravidarum

Occurrence is 1 to 20 per 1000 pregnancies. It is associated with age less than 20 years, nulliparity, obesity, preexisting diabetes and nonsmoking status. Recurrence is uncommon in subsequent pregnancies.

It is characterized by intractable vomiting in pregnancy leading to electrolyte imbalance, dehydration and nutritional deficiencies. In 50% of the patients, liver function tests are abnormal. ALT elevation ranges from 1 to 3 folds to 20 times. It is associated with hyperthyroidism in 50% of patients. Treatment is rehydration. If pharmacologic therapy is necessary, treatment may be initiated by giving vitamin B6 10-25 mg 3-4 times daily; doxylamine12.5 mg 3-4 times daily can be used in addition. (New ACOG guidelines 2015) recommend the combination of doxylamine and vitamin B6, as first-line pharmacotherapy[1]. Treatment with ginger has shown benefit in reducing nausea and can be considered a non-pharmacologic option (level

B evidence). Metoclopramide 5-10 mg orally every 8 hours may be used next. Promethazine 12.5 mg orally or rectally every 4hours or dimenhydrinate 50-100 mg orally every 4-6hours may be added as well. Ondansetron 4-8 mg orally or IV every 8hours can be used for further refractory cases. Ondansetron and metoclopramide demonstrate similar antiemetic and antinauseant effects in hyperemesis gravidarum[2]. However, the overall profile, particularly regarding adverse effects, is better with ondansetron (Level 1 evidence) Methylprednisolone 16 mg orally or IV every 8hours for 3 days, tapered to the lowest effective dose, however, the risk profile of methylprednisolone suggests it should be used as a last resort. If medications and outpatient hydration fail or if severe electrolyte disturbances persist, inpatient admission for IV hydration may be necessary[3].

Acute fatty liver of pregnancy

The occurrence is 1:6700 in third trimester of pregnancy. Symptoms occur between 34-37 weeks of pregnancy but can occur at 19-20 weeks. Sometimes symptoms occur after delivery. It is common in twins, male births and primigravida. It is associated with preeclampsia in 21% to 64% cases. 70% cases are due to LCHAD deficiency in fetus of heterozygous mother. LCHAD is part of mitochondrial trifunctional protein and catalyzes 3rd step in β oxidation of long chain fatty acid.

Nausea, vomiting, abdominal pain followed by jaundice is the presentation. In severely affected person, hypoglycemia, renal failure, pancreatitis, esophagitis, DIC, pulmonary embolism, fulminant hepatic failure and encephalopathy can occur. Complications like premature labour, vaginal bleeding, and decreased fetal movement can occur. There will be leucocytosis, decreased serum fibrinogen, prolonged prothrombin time, moderately elevated (750U/L) serum aminotransferase and it may be very high or even normal. Initial blood tests may show renal dysfunction.Rapid delivery is the treatment regardless of the gestational age.

Cholestasis of pregnancy

It usually presents in third trimester of pregnancy but may be seen earlier. It is defined as pruritis which is most severe in palms and soles which is maximum at night. It is relieved by delivery and recovery is complete. Jaundice is rarely deep. There is increase in conjugated bilirubin and serum alkalinephosphatase. Serum bile acid is more than 10μmol/L. γGT concentration may be normal[4]. There is increased inherited sensitivity to estrogen. Mutation of MDR3 (ABCB4) gene is likely responsible for 15% cases[5]. Incidence is increased in mothers of children with progressive familial cholestasis. Treatment is UDCA (Ursodeoxycholic acid) 1 gm/day (upto 2 gm is safe).The dose is 15mg/kg to 25mg/kg. Dexamethasone 12 mg/day for 1 week than tapered in 3 days may improve pruritis by suppressing fetoplacental estrogen synthesis[6]. Treatment with cholestryamine and guar gum also relieves symptoms.

Outcome for mother is excellent, but a chance of recurrence in subsequent pregnancies is there. Fetus is at increased risk of premature labour. Most worrisome aspects of ICP is the possibility of sudden fetal death, sometimes within hours of normal fetal heart rate tracings. A bile salt, taurocholate, crossing into the fetal circulation and leading to fetal arrhythmias and decreased contractility may be the possible cause of sudden fetal death. However, fetal death rarely occurs before 36 weeks' gestation and delivery at 37 weeks gestation is recommended[7]. The current consensus favors twice-weekly nonstress testing with or without Doppler ultrasound and induction at 37 weeks.

HELLP syndrome

It consists of haemolysis/elevated liver enzymes and low platelet count. Perinatal mortality is 10-60% and maternal mortality is 1.5 to 5%[8]. Women heterozygous for factor V Leiden have an increased risk of developing HELLP syndrome[9]. Many patients of AFLP may have HELLP syndrome.

Disease is more common in multiparous and those older than 25 years. The symptoms occur at or after 32 weeks of pregnancy. 65% patients present with epigastric pain, nausea, vomiting, headache and hypertension. Etiology of disease in unknown, pathogenic factors may include abnormal vascular tone, vasospasm, coagulation & LCHAD deficiency in infant[8]. Platelet count may be less than 10,000/mm& d- dimer may be positive.

Treatment is early delivery. This disorder can recur during subsequent pregnancies but usually not. Rarely the syndrome becomes prior to delivery with subsequent development of LV failure, sepsis, consumptive coagulopathy and rarely even death. (Refer to article on hypertensive disorders in pregnancy: New Recommendations)

Acute viral hepatitis

Hepatitis A- Pregnant women who contract hepatitis A are not at increased risk of severe disease from this infection but preterm birth may increase. Neonatal cholestasis has been reported.

Hepatitis B- In patients with documented acute hepatitis B, pregnancy is not associated with increased mortality. Without treatment, hepatitis B virus infection develops

in 90% of infants born to HBe Ag positive mothers and 10% of infant born to HBe Ag negative mothers. HBe antigen positive mothers with high viral count require treatment in last trimester of pregnancy and newborn baby requires treatment with hepatitis B immunoglobulin and vaccination immediately after birth and at 1and 6 months.

Hepatitis C- HCV infection in pregnancy has a presentation that is similar to that of HCV infection in non-pregnant patients[10]. The risk of vertical transmission of HCV is about 5-10%.

Hepatitis E- This infection occurs both in epidemics and sporadically in many parts of the world. The fatality rate in this group is as high as 25%. Pregnant women especially from the Indian subcontinent and Africa are at increased risk of contracting acute HEV infection as well as developing severe complications including ALF[11]. *Management is supportive and termination of pregnancy is not recommended.*

Herpes simplex hepatitis

It is a rare hepatitis that occurs predominantly in pregnant women and immunocompromised patients. All of the reported cases have occurred in 2nd or 3rd trimester. Anicteric liver failure is the hallmark of this disease. It can be treated by acyclovir and vidarabine. Maternal or fetal mortality can be as high as 50%.

Gall bladder disease

Pregnancy is a risk factor for development of biliary sludge or cholesterol stones due to increased progesterone levels which decrease gall bladder motility. Gall stones are more likely to cause symptoms during pregnancy. Clinical presentation is similar to nonpregnant state. Patient can present as biliary colic, acute cholecystitis or acute pancreatitis. Treatment is conservative with antibiotics, analgesics and intravenous fluid for uncomplicated cases. Laproscopic cholecystectomy can be done in second trimester of pregnancy. Stones can be removed endoscopically. Incidence of sonographically visualized asymptomatic gall stones is 2.5% to 10%.

Chronic liver disease

Fertility is decreased in women with significant hepatic dysfunction due to hypothalamic-pituitary dysfunction. However, cirrhosis is not a contraindication, as pregnancy may be tolerated if cirrhosis is well-compensated and without features of portal hypertension.

Wilson disease

Pregnant patients must remain on medication to treat Wilson disease because discontinuation of therapy can cause sudden copper release, hemolysis, acute liver failure and death.

Autoimmune liver disease

Women with AIH can become pregnant and carry successful pregnancies to term with the expectation of delivering a normal baby. However the disease activity is unpredictable in pregnancy. In disease flare up cases, steroid and azathiopurine doses can be in increased; otherwise in stable patients previous dose of immunosuppressants may be continued.

To conclude, correct diagnosis, timely intervention and a multidisciplinary approach with involvement of the obstetrician, physician and hepatologist is imperative to achieve a good maternal and fetal outcome in cases of pregnancy with liver disease.

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Current Concepts in Cervical Cancer Screening & Hands-on LEEP Workshop

Under the aegis of ISCCP & Oncology Committee of AOGD
Approved by International Federation of Colposcopy

On Saturday, 26th September, 2015
At Auditorium, Sant Parmanand Hospital, 08:30am to 04:00pm

Chairperson: **Dr Nirmala Agarwal** ***Organizing Secretory:*** **Dr Sweta Balani**

Programme Highlights: Lectures on Current Concepts in Cervical Cancer Screening & Management, Biomarkers in the screening of cervical pathology, Panel Discussion on Clinical Scenarios, Videos on Colposcopy, LEEP & Cone Biopsy.

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Pre Registration mandatry for hand on LEEP Workshop
For Registration Contact:
Dr Sweta Balani (9811395800), Email ID: swetagarima@gmail.com
Ms Rama (9958147642)

Hands on LEEP Workshop

Workshop Secretariat: Department of Obstetrics & Gynaecology, Sant Parmanand Hospital, 18, Shamnath Marg, Civil Lines, Delhi-110054.

Events Held

Events held under the aegis of AOGD in July 2015

- **"Guest Lecture" by Prof. Bart Fauser on PCOS** at Hotel Le Meridien on 2nd August, 2015
- CME on **"Quest for Excellence in Obstetric Skill"** on 8th August, 2015, Safe Motherhood Subcommmittee LHMC & SSKH Delhi
- **"Outreach Programme" for Comprehensive Women's Health** organised by Dr N P Kaur, Rajeev Gandhi Cancer Institute and Safdarjung Hospital at Rajouri Garden on 9th August, 2015
- **CME - PCOS & Thin Endometrium** under aegis of AOGD Reproductive Endocrinology Subcommittee and DGF North held at Fortis Hospital Shalimar Bagh on 11th August, 2015
- **" Outreach Programme" for Comprehensive Women's Health** organised by Dr Rupali Dewan, Safdarjung Hospital and Rajeev Gandhi Cancer Institute at Aliganj on 12th August, 2015
- **Cervical Cancer Screening Camp** by Navoothan Foundation in association with AOGD on 16th August in Faridabad
- **Ethicon Advanced Endoscopy one day Certification Course** free for 30 AOGD members on 17th,18th,19th August, 2015
- CME **"Recent Advances in Genetic & Fetal Medicine"** held at Sunder Lal Jain Hospital under AOGD **Fetal Medicine and Genetic** Subcommittee on 19th August, 2015.
- **CME on Fertility –Bridging Hurdles** organised by KJVF, IFS & Infertility Subcommittee on 19th August, 2015
- CME on **Maternal Mortality** Organized by Department of Obstetrics & Gynaecology LHMC & Safe Motherhood Committee of AOGD under Aegis of Indian College of Obstetrics & Gynaecology on 20th August, 2015
- CME **"Fetal Medicine & Genetics in Clinical Practice"** held at Maharaja Agrasen Hospital under AOGD Fetal Medicine and Genetic Subcommittee on 20th August, 2015
- AOGD **Endoscopy and Endometriosis** Subcommittees hands on course in Hysteroscopy, Laparoscopy and Vaginal Surgery on 13th& 14th August 2015 and Endometriosis Video Workshop on 22nd August, 2015 at Fortis Flt Lt Rajan Dhall Hospital, Vasant Kunj, New Delhi
- **Monthly clinical meeting of AOGD** was held at AIIMS on 21st August, 2015
- AOGD Rural Health Committee (Dr Kusum Chopra), organized- **Tree plantation and painting competition** on the Subject save water and waste management in Jawahar Bal Bhawan in Mandi Village on 21st of August; conducted in collaboration with Inner wheel club Vasant Kunj, Rotary Club Delhi Ridge and Jawahar Bal Bhawan.
- **2nd Module Course of USG in Third Trimester** on 24th August, 2015 for AOGD Members by Dr Anita Kaul at Safdarjung Hospital
- **CME on Contraception and legal aspects of MTP** on 25th August, 2015 at Hotel Vikram
- **CME on Dilemmas in Infertility** Under Aegis of Indian Fertility Society and Infertility Committee of AOGD on 26th August, 2015, 01:00pm-05:00pm, Vikram Hotel, organized by Dr Surveen Ghumman
- **Talk on female issues** related to safety, health and education to girl students and faculty member on 28th August, 2015 under AOGD Reproductive endocrinology subcommittees, by Dr Susheela Gupta Venue: Rukmini Devi Institute of Advance Studies
- **FENIX, 2015- Annual Conference of DGES with theme**-"Fertility and Beyond: Inception to Xcellence" organised by Obs & Gynae, AIIMS in association with GESI on 28th - 30th August, 2015 at AIIMS

Guest Lecture by Professor Bart Fauser on PCOS


CME on Dilemmas in Infertility

CME on PCOS and Thin Endometrium

AOGD Representation at North Zone YUVA FOGSI at Sirinagar

ICOG & AOGD CME on Maternal Mortality at LHMC

Monthly AOGD Clinical Meeting at AIIMS

Tree Plantation and Painting Completion for Rural Children

CME on Recent Advances in Genetic & Fetal Medicine

CME on Fetal Medicine & Genetics in Clinical Practice

CME on Fertility -Bridging Hurdles

CME on Quest for Excellence in Obstetrical skills at LHMC

CME on Quest for Excellence in Obstetrical skills at LHMC

Outreach Programme for Comprehensive Women's Health at Rajouri Garden on 9th August

Outreach Programme for Comprehensive Women's Health at Aliganj on 12th August

Cervical Cancer Screening Camp by Navoothan Foundation in Association with Safdarjung Hospital & AOGD

Talk on Female Health and Safety issues for Girl Students by Dr Susheela Gupta

FENIX 2015

FENIX 2015

Meet the Luminary

Dr SK Bhandari

It was an honour and pleasure to meet Dr SK Bhandari, an epitome of grace, charm, humility and kindness. Her quintessential character shone on her face as she took us down the memory lane through the journey of her life which can be described as nothing short of being magical. We were mesmerised by her memoirs- the highlights of which are penned below for our members.....

Dr Jyotsna Suri, Dr Rekha Bharti

Birthday 16th April	**Place of birth** Islamabad, Pakistan	**Graduation** Lady Hardinge Medical College	**Post-graduation** FRCS and FRCOG, UK
If not a gynaecologist, what would you have been? A surgeon	**What makes your day?** Doing Yoga and meditation in the morning and an academic catch-up in the evening		**Your strategy in a crisis-** God dictates you
How do you de-stress? Watching TV, being with family and family dinners		**Any regrets?** None	**What ruins your day?** People shouting and narrow minded people

One habit that you are proud of- to see goodness in every human.My way of remaining a happy individual is to see that spark of divinity in everybody, whoever I interact with.

High point of your life- meeting my husband and having a lovely daughter

What disappoints you?- I accept the situations created by God, so never feel disappointed

Your role model- As a young girl my mother was my role model, she was a great teacher and a top educator; other role models in my life were- my teachers and many legends in the field of Obst. &Gynaewhom I have met.

My strength - God, who follows and guides me all the time, my husband, my daughter and all the colleagues who have worked with me and have made all my dreams come true.

A book that has made a lasting impression- "Brave New World" by Aldous Huxley

An event that made a lasting impression- Once during premedical from the Hindu college, I got late due to rain for the lecture of Dr Balakrishnan, a biology professor. The professor told me that you will not melt away with the rain. Since then I have been very punctual, so much so that on seeing me my colleagues in UK used to adjust the time in their watch

Your favourite pastime- Reading, travelling and being with family.

Your professional journey- Did schooling till 10th from Islamabad, came to Delhi after partition and joined the Hindu college for premedical. After completing MBBS in 1954 went to America in January 1955; was the first Indian doctor at New British General hospital, Connecticut; learnt American ethics of labour management, application of low forceps for all deliveries and by third month of working there I learnt to close the abdomen. After one year I realised that the postgraduation from the US was not recognised in India and decided to go to UK for further higher studies and experience. Worked at the Halifax Royal Infirmary, Manchester Withington and Wythenshawe Hospital, South Manchester University & Christi Hospital from 1956-58. There I got an opportunity to meet and work with Dr Fothergill at the Christie hospital, where Manchester technique was started; worked there for 3 years. At London from 1959-61, worked at Royal Free Hospital and Elizabeth Garret Hospital. There I worked with Dr. John Howkins, author of Shaw's operative gynaecology and Dame Josephin Barns, Internationally known gynaecologist (Vice President of RCOG and President of British Medical Association)

At the London hospital, I learnt the surgical skills from Dr John Howkins who had his technique of total hysterectomy with total vaginectomy; the women undergoing the surgery underwent second surgery after 6 months for vaginal reconstruction by Dr McIndoe. Worked there for 2 years and then completed MRCOG. After 7 years of learning at various States, returned to India by ship. Had an opportunity to work with Dr Shirodkar, the then FOGSI president, for a week in Bombay. On advice of Mr Dharamveer, former Governor and the trustee of Sir Ganga Ram hospital, I joined practice; used to visit the Holy Family, Tirath Ram and Sir Ganga Ram hospitals. I was also consultant to British High Commission. In 1973, I left other places for uplifting SGR hospital, worked day and night.Currently Emeritus and Advisor, Institute of Obst & Gynae; Trustee of Sir Ganga Ram Hospital -1970 onwards; Chairperson Management Board, Sir Ganga Ram Hospital - 1988 - 1991.

During my period of chairpersonship at Ganga Ram Hospital, it was a period of intense activity of expansion and inducting some eminent teachers and some brilliant young consultants besides facing some hurdles and challenges. I myself had a special interest in vaginal surgery and performing the obstetric ultrasound to start with, besides participating in the training of the post-graduates and being a guide for the thesis.

In the meantime, I also visited many centres of excellence and met many pioneers in the field which included Dr. Semm in Kiel, Germany, Dr. Cartier, a renowned colposcopist from Paris, IVF centres at Los Angeles & Cincinnati, John's Hopkins Clinic, Mayo Clinic and Endoscopy centre of Nizhat brothers in Atlanta, Georgia and regularly attended the FIGO meetings held at various countries. I got acquainted with the Kings College Hospital, London for the work being done in Fetal Medicine under Dr. Stuart Campbell and visited Dr. Nicolaides place off & on then onwards.

My vision was to introduce concept of different sub-specialities in the field of Gynaecology and Obstetrics. This led to the birth of IVF- ART following which the birth of first IVF baby in North India in 1991 happened. Colposcopy clinic was introduced in our hospital in 1985. Thereafter Ultrasound in Obstetrics was introduced for the first time in private set-up leading to fetal medicine speciality, which was subsequently followed by Gynae Endoscopy, High Risk Pregnancy, Adolescent Gynaecology, Mature Women Clinic and Urogynaecology.The hospital received recognition from National Board of Examination for many specialities of which Obst&Gynae was one of them. Hospital is also now a recognised centre for the Post Doctorate Fellowship in IVF & ART.

Currently under the chairpersonship of Dr. IndraniGanguli and rest of the team, the department has further made progress in all directions including holding the offices of AOGD, NARCHI, ISOPARB and participating actively in many national conferences. The hospital has now an image of providing good ethical and professional services to all section of society

What motivated you to take up this profession?- My interest in science, and since every body in my family was an engineer I was motivated to take up the medical field.

What inspired you to become a gynaecologist? I always had an interest in a surgical branch- since General Surgery was generally considered as a male dominated area those days; it was a natural choice for me to be a gynaecologist.

Any unfulfilled tasks? No, I'm satisfied with whatever I achieved in life

Helpless moment of your early professional life? Seeing poverty and the inability of women to be able to reach hospital in time

Your current state of mind- calm, satisfied and peaceful

A piece of advice you want to give to a budding gynaecologist- Don't be a disgruntled person and have in depth interaction with patients

Any other message- Never criticise any of your colleague - we are not God and mistakes can be made by anyone

What does AOGD mean to you- A body that unites us all and a forum to share knowledge

Favourite Movie- I appreciate good work of any actor; recently I liked the acting of Kangana in "Queen"

Favourite Singer- Sehgal family singers, they are also my husband's relatives

Favourite Food- Vegetarian

Scientific Programme

Day 1 : 31st October, 2015 — **Hall A (Stein Auditorium)**

Time	Session / Topic
08:00-08:45	**Registration**
08:45-09:00	**Welcome**
09:00-10:00	**Newer Horizons** • Pre eclampsia; New insights in diagnosis and management • New concepts in labour management • Multiple pregnancy-Minimising complicatons • Preterm labor -Optimising outcome
10:00-10:45	**Obstetric Emergencies: Call for action** • Postpartum collapse • Altered sensorium in pregnancy • ARDS in Pregnancy
10:45-11:00	**Tea Break & Exhibition**
11:00-11:30	**Inauguration & Felicitation**
11:30-12:00	**AOGD Oration**
12:00-12:30	**Invited Lecture 1** • Tackling Midlife Crisis through Hormone Therapy-Whats New
12:30-13:00	**Invited Lecture 2** • Managing mullerian anomaly laparoscopically
13:00-14:00	**Lunch & Exhibition**
14:00-15:00	**Competition Papers**
15.00-16.00	**The Quest continues** • Non Lethal Anomaly detected-what next? • New Horizons in Fetal Medicine'. • Hydrocephalus: Should it be drained?
16:00-17:00	**Panel -** • Legal Tangle
17:00-Onwards	**Tea**

Day 2 : 1st November, 2015 — **Hall A (Stein Auditorium)**

Time	Session / Topic
09:00-10:00	**Guideline Capsules** • HIV in pregnancy - what has changed • Rationalizing blood component therapy • Decoding APLA • Confusion to clarity in Antenatal USG
10:00-10:45	**Medical Disorders in pregnancy- Case Based Discussion** • Risk assessment and management of cardiac patient in pregnancy • Pregnancy management in Patients with Underlying Renal Disease • Jaundice in pregnancy- Management dilemma
10:45-11:00	**Tea Break & Exhibition**
11:00-11:45	**Breaking news in obstetric & Gynaecology** • New therapies for RPL • Oral Hypoglycemic Agents in Pregnancy • Preconception counselling
11:45-12:00	**Plenary Lecture** • Assessing Maternal Morbidity in India
12:00-12:30	**Brig. Khanna Oration** • Evolution of Surgery for Epithelial Ovarian Cancer- How much is adequate?
12:30-13:00	**FOGSI President Oration** • Laparoscopic tissue extraction- controversies & New Solution
13:00-14:00	**Lunch & Exhibition**
14:00-15:00	**Panel -** • Infections in Pregnancy
15:00-16:00	**Point Counter Point** • Pregnancy beyond 40 weeks: Should we wait ? • Cord blood banking- Are we ready for it? • Isolated oligoamnios in 3rd Trimester: Is action required ?
16:00-17:00	**Slogan Competition**
17:00-17:30	**Valedictory Ceremony & Thanks Giving**
17:30-Onwards	**Tea**

Day 1 : 31st October, 2015 — **Hall B (Silver OAK)**

Time	Session
08:00-08:45	**Registration**
08:45-09:00	**Welcome**
09:00-10:00	**Newer Horizons** • Role of AMH in Infertility • Endometrium in infertility management • Challenges in managing a hirsute PCOS
10:00-10:45	**Panel -** • Unexpected challenges in gynae surgery
10:45-11:00	**Tea Break & Exhibition**
11:00-11:30	**Inauguration & Felicitation**
11:30-12:00	**AOGD Oration**
12:00-12:30	**Invited Lecture 1** • Tackling Midlife Crisis through Hormone Therapy-Whats New
12:30-13:00	**Invited Lecture 2** • Managing mullerian anomaly laparoscopically
13:00-14:00	**Lunch & Exhibition**
14:00-14:45	**New Insights- Preventive Oncology** • Updates on HPV Vaccines • Understanding BRCA in Breast Cancer Screening • Role of Biomarkers in gynaecological malignancies
14:45-15:30	**The Quest continues** • Current management of Ca Endometrium • Robotics in Gynae oncology • Fertility conservation in gynaecological malignancies
15:30-16:15	**Tailoring management of Fibroids** • Fibroid management in infertility • Medical management of fibroids • Large Fibroids- Laparoscopy or Laparotomy?
16:15-17:00	**Invited Video**
17:00-Onwards	**Tea**

Day 2 : 1st November, 2015 — **Hall B (Silver OAK)**

Time	Session / Topic
9:00-10:00	**Problem based case discussions** • Endometriosis in young woman-Choice of treatment • Recurrent & deep infiltrating endometriosis- A challenge to clinician • Conservative management of Adenomyosis
10:00-10:45	**Urogynaecology -Whats In !** • OAB- Treatment Options • Biofeedback for incontinence • Botox for incontinence
10:45-11:00	**Tea Break & Exhibition**
11:00-11:45	**Contraception Capsule** • Contraception Wheel • Are we justified in doing intra caesarean IUCD insertion • Contraception for extremes of age: Role play
11:45-12:00	**Plenary Lecture** • Assessing Maternal Morbidity in India
12:00-12:30	**Brig. Khanna Oration** • Evolution of Surgery for Epithelial Ovarian Cancer- How much is adequate?
12:30-13:00	**FOGSI President Oration** • Laparoscopic tissue extraction- Controversies & New Solution
13:00-14:00	**Lunch & Exhibition**
14:00-15:00	**Guideline Capsules** • Ovarian stimulation in extreme cases- PCOS, Low Reserve • Male infertility- What a gynaecologist must know • Luteal phase support- When, what and how long • Melatonin- New approach in infertility
15:00-16:00	**Point Counter Point** • Empirical ATT for Infertility in India-Is it Indicated ? • Ovarian drilling for PCOS- Should it be done ? • NIPT- Is it relevant in current Scenario ?
16:00-17:00	**Valedictory Ceremony & Thanks Giving**
17:30-Onwards	**Tea**

Competition Papers, Free Papers & Posters Submission

Theme Topic for Abstract Submission

* Critical Care in Obstetrics & Gynaecology
* Preventive Health Care in Obstetrics & Gynaecology
* Miscellaneous

Please email abstracts submission form to AOGD office at aogdsjh2015@gmail.com & sumitrabachani@gmail.com

Last date for accepting free paper and poster abstract is 30th September, 2015.

Competition Papers

Last date for Submission of competition paper is 15th September, 2015. Candidate should be of less than 30 yrs of age. Three hard copies of the competition paper should be sent to AOGD Secretariat. A soft copy of the competition paper along with structured abstract should also be sent to aogdsjh2015@gmail.com.

Note: Papers will not be considered without Registration Payment.

List of Prizes - AOGD Conference 2015

Dr S N Mukherjee- Roating Trophy	Best Clinical Presentation
Research paper- Best Competition Paper	3 Medals, Gold, Silver, Bronze
Dr Batra's Medal- Winning team of AOGD	1 Gold Medal
Dr Neera Agarwal Medal- Best Paper on theme topic obstetrics	2 Medals, Gold, Silver
Dr Neelam Bala Vaid's Medal- Best paper on theme topic gynecology	2 Medals, Gold, Silver
Free Paper competition- Mescellaneous Category	2 Medals, Gold, Silver
Slogan Competition	First Prize, Second Prize
Dr Suneeta Mittal- Population Stabilization	1 Gold Medal
Dr U P Jha & Dewan Balakram- Best Presentation in Gynae Oncology	1 Gold Medal
Dr U P Jha & Raj Soni- Best Oral/Video/Paper Presentation in Endoscopy	1 Gold Medal

37th Annual Conference of Association of Obstetricians and Gynaecologists of Delhi

Theme:
"Preventive Health & Critical Care in Obstetrics & Gynaecology"

Conference: 31st Oct., 2015 - 1st Nov., 2015 **Venue:** India Habitat Center, Lodhi Road, New Delhi

Registration Detail

(From may be photocopied. Kindly fill in Capital Letters)

Full Name: ..... Qualification: .....

Specialty ..... Category: ☐ Delegate ☐ PG Student ☐ Faculty

Organization: ..... Designation .....

Address: .....

Pin Code:..... Mobile No.: ..... Email ID: .....

Registration Fee

Dates	Conference			Workshop		
	Members	PG Students	Non-members	Members	PG Students	Non-members
Up to 30 September, 2015	₹ 3500	₹ 3000	₹ 4300	₹ 1500	₹ 1300	₹ 1700
Up to 15 October, 2015	₹ 4000	₹ 3500	₹ 4800	₹ 1800	₹ 1600	₹ 2000
Spot	₹ 4500	₹ 4000	₹ 5300	₹ 2100	₹ 1900	₹ 2300

- All cheques/bank draft payable at New Delhi & should be made in favour of "AOGD Annual Conference 2015"
- Post Graduates have to attach a certificate from HOD and also be an associate member of the AOGD in order to attend and present a paper.
- It is mandatory to register for the conference in order to attend & register for any workshop.
- You may register for more than one workshop.

Date	**Workshop**	**Venue**	✓
28th Oct., 2015	Oncology	Sir Gangaram Hospital, New Delhi	☐
28th Oct., 2015	Reproductive Endocrinology and Infertility	Wood Apple Residency Vikas Marg, New Delhi	☐
29th Oct., 2015	Fetal Medicine	Apollo Hospital, Sarita Vihar, New Delhi	☐
29th Oct., 2015	Endoscopy	Fortis Hospital, Vasant Kunj, New Delhi	☐
30th Oct., 2015	Endometriosis	Fortis Hospital, Vasant Kunj, New Delhi	☐
2nd Nov., 2015	Urogynaecology and Vaginal Surgery	VMMC & Safdarjung Hospital, New Delhi	☐
2nd Nov., 2015	Medico legal aspect "Mother & Child"	ESI Hospital, Basai Darapur, New Delhi	☐

Payment details:

Bank draft/cheque no..... Bank .....

Branch ..... Total amount .....

CONFERENCE SECRETARIAT

Ward-8, Room No.-118 Department of Obst & Gynae, VMMC & Safdarjung Hospital, New Delhi-110 029
Phone No: 011-26181879, 26714473; Email: aogdsjh2015@gmail.com

SOCIETY OF FETAL MEDICINE

Regd. Office: C584, Defence Colony, New Delhi-110024

Forthcoming Meetings

- **5-6th September, 2015**: Medicolegal & Ultrasound Workshop (First Trimester and Beyond) in association of Bangalore Society of Obstetrics and Gynecology (BSOG), Bengaluru.
  Contact: Dr. Prathima Radhakrishnan, Phone: +91 9035173865/ 9742875424 email: prathimabfmc@hotmail.com
- **27th September, 2015**: Inaugural CME of the Patiala SFM Chapter, Patiala, Punjab.
  Contact: Dr. Chander Mohini. Phone: +91 9814087891, email: chandermohini15@gmail.com
- **25th October, 2015:** Fetal Day CME, Jabalpur, Madhya Pradesh.
  Contact: Dr. D'Pankar Banerji. Phone: +91 9826166952, email: dpankar@idealfertility.com
- **31st October- 1st November, 2015:** Rainbow Fetus Day and Society of Fetal Medicine Mid-term CME, Hyderabad, Andhra Pradesh.
  Contact: Dr. Chinmayee Ratha. Phone: +91 9885348600, email: chinmayee3@gmail.com
- **12-13th December, 2015:** Fetal Heart 2, Amrita Institute of Medical Sciences, Kochi. Kerala covering Fetal Heart Imaging from 2D to 4D STIC with a STIC workshop and Therapeutics Focussing on Comprehensive Care of a Fetus with Heart Disease
  Contact: Dr Balu Vaidyanathan. Phone: +91 9495820684, email: baluvaidyanathan@gmail.com

For Society of Fetal Medicine membership, kindly contact Vishal Mittal at +919312227181 or send an email at secretariat@societyoffetalmedicine.com.

Urinary Tract Infection in Pregnancy

Niharika Dhiman[1], Amrita Gaurav[2], Sandipan Chowdhuri[2], Rajlaxmi Mundhra[2], Jaya Chaturvedi[3]
[1]Assistant Professor, [2]Senior Resident, [3]Professor, Department of Obstetrics and Gynaecology, AIIMS, Rishikesh

Urinary tract infections (UTI) are among the most common bacterial infections during pregnancy. In general, pregnant patients are considered immunocompromised UTI hosts because of the physiologic changes associated with pregnancy. UTIs include acute cystitis, pyelonephritis and asymptomatic bacteriuria (positive urine culture in an asymptomatic woman). Approximately 1-4 % of pregnant women experience acute cystitis and the incidence of asymptomatic bacteriuria during pregnancy ranges from 2-11 percent.[1,2]

Terminologies

Significant bacteriuria: It is defined as the presence of at least 10^5 CFU of the same species per millilitre of urine on culture of a carefully collected sample in an asymptomatic or symptomatic patient.

Asymptomatic bacteriuria: Asymptomatic bacteriuria is commonly defined as the presence of more than 10^5 CFU/mL in 2 consecutive urine samples in the absence of declared symptoms. Untreated asymptomatic bacteriuria is a risk factor for acute cystitis (40%) and pyelonephritis (25-30%) in pregnancy.

Acute cystitis: Acute cystitis involves only the lower urinary tract; it is characterized by inflammation of the bladder as a result of bacterial or nonbacterial causes (e.g. radiation or viral infection). Acute cystitis develops in approximately 1% of pregnant patients, of whom 60% have a negative result on initial screening. They present with hematuria, dysuria, suprapubic discomfort, frequency, urgency, and nocturia. Acute cystitis is complicated by upper urinary tract disease (i.e. pyelonephritis) in 15-50% of cases.

Acute pyelonephritis: Pyelonephritis complicates 2% of all pregnancies. Acute pyelonephritis is characterized by fever, flank pain, and tenderness in addition to significant bacteriuria. Other symptoms may include nausea, vomiting, frequency, urgency, and dysuria. Furthermore, women with additional risk factors (e.g. immunosuppression, diabetes, sickle cell anaemia, neurogenic bladder, recurrent or persistent UTIs before pregnancy) are at an increased risk for a complicated UTI[2].

Pathophysiology

1. Ascending colonization of the urinary tract, primarily by existing vaginal, perineal, and fecal flora.
2. Urinary stasis caused by the weight of the enlarging uterus.
3. Progesterone-induced ureteral smooth muscle relaxation.
4. Blood-volume expansion accompanied by increases in the glomerular filtration rate and urinary output.
5. Glycosuria due to impaired resorption by the collecting tubule and loop of Henle and an increase in levels of urinary amino acids (aminoaciduria) during pregnancy are additional factors that lead to UTI.

   Calyceal and ureteral dilatation are more common on the right side; in 86% of cases, the dilatation is localized to the right. The degree of calyceal dilatation is also more pronounced on the right than the left (average 15 mm vs 5 mm) and begins by about 10 weeks' gestation and worsens throughout pregnancy (2% during the first trimester, 52% during the second trimester, and 46% in the third trimester[3]).

Epidemiology

The frequency of UTI in pregnant women (0.3-1.3%) is similar to that in nonpregnant women. The prevalence of asymptomatic bacteriuria in pregnant women is 2.5-11%, as opposed to 3-8% in nonpregnant women. In as many as 40% of these cases, bacteriuria may progress to symptomatic upper UTI or pyelonephritis; this rate is significantly higher than that seen in nonpregnant women[1,4,5]

Risk factors for UTI

- Indigent patients
- Sickle cell trait
- Diabetes mellitus
- Neurogenic bladder retention
- History of vesicoureteral reflux
- Previous renal transplantation
- History of previous UTI

Pathogens: Escherichia coli (80%) Klebsiella pneumonia, other organisms like coagulase-negative staphylococci, Enterococcus species, group B streptococci, and Gardnerella vaginalis, Pseudomonas aeruginosa and urease-producing organisms, such as P. mirabilis, Providencia stuartii and Morganella morganii.

Clinical presentation

The presentation varies according to whether the patient has asymptomatic bacteriuria, a lower urinary tract infection or an upper UTI (pyelonephritis). Burning with urination (dysuria) is the most common symptom with or without associated hematuria. It is important to note that some of the features of UTI may mimic physiological pregnancy changes like increased frequency of micturation and hence the clinician needs to have a high index of suspicion to make the correct diagnosis.

Pyelonephritis may present as, fever (>38°C), shaking chills, costovertebral angle tenderness, anorexia, nausea, and vomiting. Right-side flank pain is more common than left-side or bilateral flank pain. Patients may also present with hypothermia (as low as 34°C).

During the physical examination, the findings should be considered in relation to the duration of pregnancy. A thorough physical examination is recommended, with particular attention to the abdomen. Suprapubic or costovertebral tenderness may be present. Patients with pyelonephritis are ill looking, with fever (usually >38°C) and flank tenderness upon palpation. Flank tenderness occurs on the right side in more than half of patients, bilaterally in one fourth, and on the left side in one fourth. Pain may also be found suprapubically with palpation.

In asymptomatic bacteriuria, no physical findings are typically present. Per speculum examination is recommended in all symptomatic patients (with the exception of third-trimester patients with active bleeding) to rule out vaginitis or cervicitis. Assessment of the fetal heart rate on the basis of gestational age should be included as part of the evaluation

Most cases of bacteriuria and urinary tract infection in pregnancy, have a good prognosis. Adverse prognosis is usually associated with complications viz. septic shock, respiratory failure, and hypotension[1,3,5].

Complications

Maternal

- Perinephric cellulitis, abscess and septic shock
- Pulmonary injury -approximately 2% of women with severe pyelonephritis during pregnancy have evidence of pulmonary injury due to systemic inflammatory response syndrome and respiratory insufficiency; subsequently, pulmonary edema and acute respiratory distress syndrome may develop
- Renal dysfunction (usually transient, but as many as 25% of pregnant women with pyelonephritis have a decreased glomerular filtration rate)
- Hematologic dysfunction (common but seldom of clinical importance)
- Preeclampsia and gestational hypertension
- maternal anaemia
- amnionitis

Fetal

- Hypoxic fetal events due to maternal complications of infection may lead to hypoperfusion of the placenta
- Low birth weight and premature labor
- Premature delivery leading to increased infant morbidity and mortality

Investigations

- Blood studies: Complete blood count (CBC), serum electrolytes, blood urea nitrogen (BUN), serum creatinine
- Urine studies: culture & urinalysis; dipstick testing
- Imaging tests can include ultrasonography and intravenous pyelography only in selected cases.

Screening for asymptomatic bacteriuria. (ASB)

In all pregnant patients, urinalysis and culturing should be done during the first prenatal visit or at 12-16 weeks' gestation. However approximately 1 -2 % of the women with ASB who have tested negative during first visit will develop symptomatic infection later on. Screening all women throughout pregnancy is not advisable[2,6].

Indications for repeat screening (every 4-6 weeks throughout pregnancy)

- History of asymptomatic bacteriuria /recurrent UTI
- Contaminated specimen
- History of recurrent infections outside of pregnancy
- Known and unknown structural abnormality of the urinary tract
- Renal calculi
- Sickle cell disease and trait.
- Pre existing Diabetes mellitus.

Urine specimen collection

For urine collection, a midstream clean catch sample is adequate. The technique is as follows:

With one hand, spread the labia with the other hand, use a moistened towelette to wipe the urethral meatus downward toward the rectum. Discard the initial portion of the voided urine into the toilet. Collect the middle portion in a sterile container, while keeping the labia spread with the first hand. If the patient is unable to void, too ill, extremely obese, or bedridden, a catheterized specimen should be collected. Routine catheterization is not recommended, because of the risks of introducing bacteria into the urinary tract.

Urine studies

Urinalysis

Positive results for nitrites, leukocyte esterase, WBCs, red blood cells (RBCs), and protein suggest UTI. Bacteria found in the specimen can help with the diagnosis. Urinalysis has a specificity of 97-100%, but it has a sensitivity of only 25-67% when compared with culture in the diagnosis of asymptomatic bacteriuria.

Urine culture

Indications for performing a urine culture include the following:

- Positive findings in urinalysis
- Recurrent UTI
- Pyelonephritis
- Failure to respond to initial treatment regimens
- History of recent instrumentation
- Hospital admission

Two consecutive voided specimens with isolation of the same bacterial strain, at a colony count of 10^5organisms/ per millilitre or higher, has historically been used to define a positive culture result. A single catheterized specimen yielding a colony count of at least 100 CFU/mL is also diagnostic. Counts lower than 100,000 CFU/mL, with 2 or more organisms, usually indicate specimen contamination rather than infection. The specimen should be sent immediately or refrigerated at 4°C if that is not possible.

Dipstick testing

Several reports describe the use of urine dipstick for nitrites and leukocyte esterase in the evaluation of asymptomatic bacteriuria. In comparison with culture, sensitivity ranges from 50% to 92% and specificity from 86% to 97%.The leukocyte esterase test may be unreliable in patients with low-level pyuria (5-20 WBCs/HPF). The addition of protein and blood increases the sensitivity and specificity of the test in the evaluation of UTI. As suggested by Kodikara et al, nitrite dipstick testing may be a reasonable and cost-effective screening strategy for women who otherwise may not undergo screening for bacteriuria, as is often the case in developing countries.

Renal ultrasonography and intravenous pyelography

- Unless an anatomic abnormality or renal disease is suspected, initial routine imaging studies are not necessary.
- Patients with suspected pyelonephritis who are not responsive to appropriate antibiotic therapy after 48-72 hours should also undergo imaging.
- Renal ultrasonography (or limited intravenous pyelography if the benefits of a definitive diagnosis outweigh the minor risk of radiation) may be helpful in patients with recurrent urinary tract infection or symptoms that suggest nephrolithiasis.
- Confusion about the diagnosis of urolithiasis, pyelonephritis, or both is an indication for obtaining imaging studies.[2,5]

Treatment of bacteriuria and cystitis

Treatment mainly includes administration of appropriate antibiotics and administration of fluid if the patient is dehydrated.

Admission is indicated in case of complications. The choice of treatment depends upon the infecting organism and its sensitivity to antimicrobials. Single dose therapy as well as 3 day courses have been used effectively. However a 7 day course is preferred during pregnancy.[1,2,5]

Antibiotic choices for treatment of UTI during pregnancy

Single-dose treatment 1) Amoxicillin, 3 g 2) Ampicillin, 2 g 3) Cephalosporin, 2 g 4) Nitrofurantoin, 200 mg 5) Trimethoprim-sulfamethoxazole, 320/1600 mg
3-day course 1) Amoxicillin, 500 mg three times daily 2) Ampicillin, 250 mg four times daily 3) Cephalosporin, 250 mg four times daily 4) Ciprofloxacin, 250 mg twice daily 5) Levofloxacin, 250 or 500 mg daily 6) Nitrofurantoin, 50 to 100 mg four times daily or 100 mg twice daily 7) Trimethoprim-sulfamethoxazole, 160/800 mg two times daily
Other Nitrofurantoin, 100 mg four times daily for 10 days Nitrofurantoin, 100 mg twice daily for 5 to 7 days Nitrofurantoin, 100 mg at bedtime for 10 days Treatment failures- Nitrofurantoin, 100 mg four times daily for 21 days

Treatment of non responders

If there is no improvement in 48-72 hours, sonography is recommended to look for urinary tract obstruction. If stones are suspected despite a nondiagnostic sonographic report, a plain abdominal radiograph will identify nearly 90 percent. Modified one shot pyelogram after contrast injection almost always provides adequate imaging. Finally MRU may be used. Obstruction may be relieved by cystoscopic placement of a double j ureteral stent. Percutaneous nephrostomy is a better option. Surgical removal may be required in some cases[1].

Treatment of pyelonephritis[1,6]

Intravenous hydration to maintain a good urine output is the aim of management.

- Hospitalize patient and obtain urine and blood cultures along with hemogram, serum creatinine, and electrolytes.
- Monitor vital signs frequently, including urinary output-consider indwelling catheter.
- **Establish urinary output ≥ 50 mL/hr with intravenous crystalloid solution.**
- Administer intravenous antimicrobial therapy-ampicillin & gentamycin; cefazolin; or extended spectrum antibiotics- 95% efficacy.
- Chest radiograph is indicated, if there is dyspnea or tachypnea.
- Repeat hematology and biochemistry studies in 48 hours.
- Change to oral antimicrobials when afebrile and discharge after 24 hours of being afebrile; consider antimicrobial therapy for 7 to 10 days.
- Repeat urine culture 1-2 weeks after antimicrobial therapy

Surgical treatment[1,2,6]

Is rarely indicated in the following conditions:

- Urethral or bladder diverticulum, bladder stones
- Urethral syndrome
- Lower urinary tract trauma
- Interstitial cystitis
- Bladder cancer

To conclude, UTI during pregnancy is a common cause of serious maternal and perinatal morbidity; with appropriate screening and treatment, this morbidity can be limited. All pregnant women should be screened for bacteriuria and subsequently treated with appropriate antibiotic therapy. Acute cystitis and pyelonephritis should be treated aggressively.

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Mother–to-Be

Your clothes are getting tighter
Your cheeks have got a glow
Your abdomen is being examined
by people you don't know.
You crave for weird foods
and calories don't matter.
You can't remember life without
a fullness in your bladder.
You're getting medical advice
from everyone you see
Welcome to the joyous days
of Mother-to-be
You feel in your belly the first flutter
A kick and a roll makes you sigh in wonder
Motherhood is a state of joy
It doesn't matter whether it's a girl or boy

-Sumitra Bachani,
Specialist, VMMC & Safdarjung Hospital

CLINICAL UPDATE

Management of Cardiac Disease in Pregnancy

Sheeba Marwah[1], Manjula Sharma[2], Shubham Goel[3], Sonam R Topden[4]

[1]Senior Resident, [2]Professor & Consultant, [3]Postgraduate, [4]Consultant, Department of Obstetrics & Gynaecology, VMMC & Safdarjung Hospital, New Delhi

Introduction

Heart disease in pregnancy is the leading indirect cause of maternal mortality, responsible for 0.5 – 2.7% of maternal deaths. Its incidence is ~1% of pregnancies (0.1% to 4 %.)[1]. Improved medical and surgical treatment, and utilization of new-fangled antibiotics, has led to a diminution in the relative incidence from 0.9% to 0.3% of rheumatic heart disorders (RHD) in industrialized countries. Nevertheless, in developing countries, RHD still continues to form the major encumber of heart disease (56–89%).Cardiomyopathies are rare, but exemplify severe causes of cardiovascular complications in pregnancy, peri-partum cardiomyopathy (PPCM) being the most frequent.

Hemodynamics changes in pregnancy

Antenatal changes (Fig.1)

Plasma volume reaches a maximum of 40% above baseline at 24weeks gestation[2]. A 30–50% increase in CO occurs in normal pregnancy. In early pregnancy increased CO is primarily related to the rise in stroke volume; however, later, heart rate is the major contributory factor. Heart rate (HR) begins to rise at 20 weeks and increases until 32 weeks, the rise persists 2–5 days postpartum. Systemic BP (SBP) typically falls early in gestation and diastolic BP (DBP) is usually 10 mmHg below baseline in the second trimester. This decrease in BP is caused by active vasodilatation, achieved through the action of local mediators such as prostacyclin and nitric oxide. In the third trimester, the DBP gradually increases and may normalize to non-pregnant values by term.

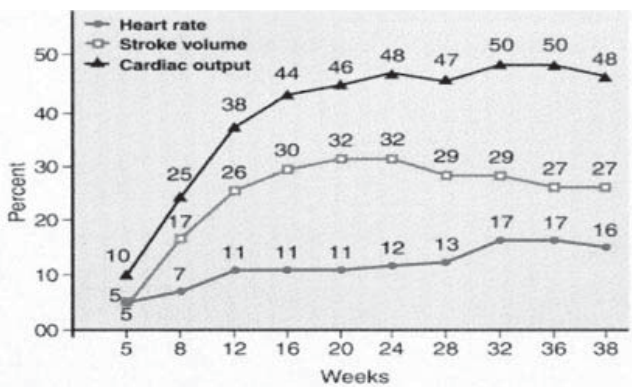

Fig. 1: Hemodynamic changes in pregnancy

Intrapartum changes

The pain and anxiety of labor leads to increase in HR leading to increased afterload. The amplified catecholamines also contribute to augmented cardiac load. Each uterine contraction further causes centralization of 300-500cc of blood from utero-placental circulation

Postpartum changes

Cardiac Output -Immediately post-delivery, CO increases further by 30% for a brief period. This is due to loss of utero-placental shunt; relief of venacaval compression by gravid uterus; auto-transfusion of utero-placental blood and decreased colloid oncotic pressure. Within 1 hour, CO and HR return to third trimester values, whereas MBP and SV return by 24 hours post-delivery. All hemodynamic changes begin to reverse within 1-3days, and gradually return to pre-pregnancy values within 12 to 24 weeks after delivery.

When should an obstetrician suspect heart disease in a pregnant woman?

Symptoms[3]- Progressive severe dyspnea / orthopnea, nocturnal cough, hemoptysis, exertional syncope, exertional chest pain, progressive edema/anasarca tachycardia 120bpm, any s/s at rest, H/O failure in past or current pregnancy.

Physical signs[3]- Cyanosis, clubbing, persistent neck vein distension, persistent systolic murmurs > (grade 3/6, diastolic murmurs, unequivocal enlargement of heart on CXR, heave, persistent arrythmias (atrial fibrillation/ flutter), persistent Split in S2, pulmonary hypertension, murmurs associated with stenotic lesions accentuated (due to ↑d blood volume & CO), murmurs of AR, MR, VSD may become attenuated (due to↓in SVR)

Investigations

a. ECG and Chest X-ray if indicated.
b. 24-hour Holter monitoring may be required to diagnose arrhythmias.
c. Echocardiography is non-invasive and safe. With M-mode, 2D & Doppler capabilities, CHD is detected and cardiac functional status assessed. Transoesophageal echocardiography (TOE) is useful in selected cases,e.g.assessment of Infective

Endocarditis (IE), aortic dissection, or a technically difficult transthoracic study

d. Magnetic resonance cardiac imaging is useful when other modalities fail. However, safety in pregnancy and effects on fetus has not been established.

e. Radionuclide cardiac imaging and Left Heart Catheterization--not recommended in pregnancy

Management of heart disease in pregnancy

1. **Individualization of management**
2. "**Multidisciplinary approach**" (obstetrician, cardiologist, anesthetist, neonatologist, pediatric cardiologist and, if appropriate, the cardiothoracic surgeon)
3. **Risk assessment**

   Risk stratification should be based on cardiac lesion, baseline functional status, possibility and probability of cardiac complications (Table1, 2 & 3)
4. **Principles of Pre-conceptional** care
   a) Multidisciplinary approach
   b) Counseling patients regarding
      - risk assessment
      - any contraindication to pregnancy
      - discontinuation of teratogenic drugs like ACE inhibitors and oral anticoagulants.
5. **Principles of Antenatal care**
   a) Occurrence of new symptoms or worsening of pre-existing one like fever, breathlessness, cough, chest pain, palpitations or another.
   b) Individualization of antenatal visits
      ~Uncomplicated cardiac disease-once month till 28-30 weeks, 2 weekly till 36 weeks, weekly thereafter till delivery, or earlier as and when required

Table 1: Siu risk Score 2004 (NOPE) Predictors of maternal cardiovascular events[4]

- Baseline **N**YHA functional class >II or cyanosis.
- Left heart **O**bstruction (mitral valve area <2 cm2, aortic valve area <1.5 cm2, peak LV outflow tract gradient >30 mmHg by echocardiography).
- **P**rior cardiac event (heart failure, transient ischemic attack, stroke before pregnancy or arrhythmia).
- Reduced systemic ventricular systolic function **(E**jection fraction <40%).

CARPREG risk score: for each CARPREG predictor that is present a point is assigned.

0 point 5%

1 point 27%

1 point 75%

Table 2: NYHA functional classification

CLASS I	No functional limitation of activity. No symptoms of cardiac decompensation with activity.
CLASS II	Mild amount of functional limitation. Patients are asymptomatic at rest. Ordinary physical activity results in symptoms.
CLASS III	Limitation of most physical activity. Asymptomatic at rest Minimal physical activity results in symptoms.
CLASS IV	Severe limitation of physical activity results in symptoms. Patients may be symptomatic at rest/heart failure at any point of pregnancy.

Table 3: Modified WHO classification of maternal cardiovascular risk: application[5]

Conditions in which pregnancy risk is WHO I

• Uncomplicated, small or mild
- pulmonary stenosis
- patent ductus arteriosus
- mitral valve prolapse

• Successfully repaired simple lesions (atrial or ventricular septaldefect, patent ductus arteriosus, anomalous pulmonary venousdrainage).

• Atrial or ventricular ectopic beats, isolated

Conditions in which pregnancy risk is WHO II or III

WHO II (if otherwise well and uncomplicated)

• Unoperated atrial or ventricular septal defect

• Repaired tetralogy of Fallot

• Most arrhythmias

WHO II–III (depending on individual)

• Mild left ventricular impairment

• Hypertrophic cardiomyopathy

• Native or tissue valvular heart disease not considered WHO I or IV

• Marfan syndrome without aortic dilatation

• Aorta <45 mm in aortic disease associated with bicuspid aortic valve

• Repaired coarctation

WHO III (pregnancy very high risk)

• Mechanical valve

• Systemic right ventricle

• Fontan circulation

• Cyanotic heart disease (unrepaired)

• Other complex congenital heart disease

• Aortic dilatation 40–45 mm in Marfan syndrome

• Aortic dilatation 45–50 mm in aortic disease associated with bicuspidaortic valve

Conditions in wich pregnancy risk is WHO IV(pregnancy contraindicated)

• Pulmonary arterial hypertension of any cause

• Severe systemic ventricular dysfunction (LVEF <30%, NYHA III–IV)

• Previous peripartum cardiomyopathy with any residual impairment ofleft ventricular function

• Severe mitral stenosis, severe symptomatic aortic stenosis

• Marfan syndrome with aorta dilated >45 mm

• Aortic dilatation >50 mm in aortic disease associated with bicuspidaortic valve

• Native severe coarctation

c) Fe and FA, calcium supplementation as tolerated
d) Any additional investigation as advised by cardiologist
e) Fetal surveillance including USG for FWB, Fetal ECHO in women with CHD
f) Hospital Admission-NYHA I, II- 36 weeks, NYHA III, IV- at first visit
g) Identification and management of co morbidities.
h) Identification of S/S of decompensation (Easy fatigability, dyspnea, orthopnea / paroxysmal nocturnal dyspnea/ nocturnal cough/ hemoptysis / tachycardia/S_3 gallop/ basal crepitation)

6. **Intrapartum care**
   a) Route of delivery -usually accomplished vaginally. Indications of LSCS are-
      - Moderate /Severe MS in NYHA III/IV, or with PAH
      - Severe Aortic stenosis
      - Pulmonary hypertension (Primary or secondary)
      - Risk of Aortic Dissection- Marfan Syndrome with dilated aortic root dilatation>40mm and coarctation of aorta
      - Mother on oral anticoagulants in labor
      - Obstetric indications
   b) Induction of labor as per routine protocols, cervical ripening is not contraindicated

Ist stage of labor

1. Good IV access, I/O record, should be optimally hydrated with oral clear liquids during labor -IV fluids are given if required at rate not exceeding 75ml/hr (15drops/min) except in fixed CO lesions (AS, hypertrophic sub-aortic stenosis)or bidirectional shunt lesions like ASD,VSD, PDA where fluids are given at the rate of 125ml/hr. (30 drops / min).
2. Position-semirecumbent with left/right lateral tilt; this lessens the hemodynamic fluctuations associated with contractions when the patient is supine.
3. Vitals monitoring and frequent chest auscultations for basal crepts; PR>100bpm,RR>24 S/o impending failure
4. Humidified oxygen-to avoid nasal irritation
5. Fetal HR monitoring during labor
6. Pain Relief –Epidural Is Best (contraindicated in Eisenmenger's, AS, PAH, intracardiac shunts where parenteral narcotics with pudendal block are preferred)
7. Limited P/V examinations to be done under strict aseptic precautions.
8. I E Prophylaxis as per recommendations[2,6] (Table 4,5)

Table 4: Cardiac Conditions with High Risk of Endocarditis in the Presence of Bacteremia[6]

Prophylaxis against infective endocarditis is reasonable for the following patients at highest risk of adverse outcomes from infective endocarditis who undergo dental procedures that involve manipulation of either gingival tissue or the periapical region of teeth or perforation of the oral mucosa*:
• Patients with prosthetic cardiac valve or prosthetic material used for cardiac valve repair
• Patients with previous infective endocarditis
• Patients with CHD
— Unrepaired cyanotic CHD, including palliative shunts and conduits
— Completely repaired congenital heart defect repaired with prosthetic material or device, whether placed by surgery or by catheter intervention, during the first 6 months after the procedure.
— Repaired CHD with residual defects at the site or adjacent to the site of a prosthetic patch or prosthetic device (both of which inhibit endothelialization)
• Cardiac transplant recipients with valve regurgitation due to a structurally abnormal valve.
*Prophylaxis against infective endocarditis is not recommended for non-dental procedures in the absence of active infection.

Table 5: Antibiotic Prophylaxis for Infective Endocarditis in High-Risk Patients

ACOG (2011):
Standard (IV): ampicillin 2 g or cefazolin or ceftriaxone 1 g
Penicillin-allergic (IV): cefazolin or ceftriaxone* 1 g orclindamycin† 600 mg
Oral: amoxicillin 2 g
American Heart Association (Wilson, 2007):
Standard: ampicillin 2 g IV or IM or amoxicillin 2 g PO
Penicillin-allergic: clarithromycin or azithromycin 500 mgPO; cephalexin500 mg PO; clindamycin 600 mg PO, IV, or IM; or cefazolin or ceftriaxone 1 g IV or IM

*This regimen does not cover enterococcus. Vancomycin can be used if enterococcus is of concern.
†Cephalosporins should not be used in patients with a significant sensitivity to penicillins

2ndstage of labor

Usually deliver easily; vacuum / outlet forceps may be used to cut short the second stage.

3rd stage of labor - Follow AMTSL guidelines. In case of PPH, concentrated oxytocin infusion, IM carboprost or misoprost per-rectum can be given, along with bimanual massage of uterus.

After delivery of baby

- Patient to be put in sitting position with legs hanging down to aid peripheral pooling.
- Constant vigilance for signs of failure.

- Inj. lasix 20mg/40mg I/V bolus dose to be given. (Provided there was no PPH and BP>110 systolic)
- Observation in labor room for 12 hours

7. Post-partum care

- Not to be discharged before one week
- Watchful expectancy for 1st 48 –72 hrs post-delivery for S/S of pulmonary edema
- Antibiotics to continue for 7 days after delivery
- Breast feeding to continue, except in Class III, IV

8. Contraception

- OC pills, barrier contraceptives- not recommended[7].
- IUCDs can be used in uncomplicated heart disease
- Progestin only pills (desogestral) or long acting injectable progesterone are better (medroxy progesterone 150mg IM every 3 months)
- Permanent Sterilization (by minilap/ partner's vasectomy) is best and considered if family is complete

9. Follow-up

- At 6 weeks
- To the cardiologist as indicated according to the functional status of the patient.

Management of pulmonary edema

- Advise arterial blood gases (ABG), Call to medical specialist/ ICU
- Patient to be postured in sitting position
- Intranasal Oxygen administration to raise SPO2 > 60%
- Assisted mechanical ventilation required if SPO2<60%
- IV Injection Morphine 2-5mg (15mg /ml) given over 5 minutes
- IV Furosemide (Lasix) 20-40 mg slowly, repeated every 15-30 minutes till response/ BP < 90mmHg / maximum 200 mg.

Anticoagulant therapy

Indications

- Atrial fibrillation
- Prosthetic valves (mechanical)
- Cyanotic congenital heart disease
- Cardiomyopathy
- Recurrent Pulmonary tachycardia

Principles of anticoagulant use in pregnancy

- Heparin is used in first trimester, followed by warfarin in second & third trimester up to 36 weeks.
- After 36 weeks again switch over to heparin.
- Maintain INR at 1.5-2.5.
- Heparin to be stopped during labor and at least six hours before cesarean and can be restarted six hours after vaginal delivery and 24 hours after cesarean section.
- Resume warfarin therapy 24 hours postpartum if no bleeding complications

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Road to recovery

The journey from conception till ***the day***
From heart burn &retching to the beautiful quickening
All those overcome by those fluid filled elephant legs
gradually engulfing the body
then one day the all blushed skin turned sallow,
eye balls yellow and fluids pale
The head pulsated and vision blurred
It all ended with that whimper,
then began
The road to recovery

-Dr Sarita Singh
Specialist

DRUG REVIEW

Hydralazine - A New Role

Sujata Das
Senior Medical Officer, Department of Obstetrics and Gynaecology, VMMC & Safdarjung Hospital, New Delhi

Hydralazine is a vasodialator which lowers blood pressure by exerting peripheral vasodialating effect. This effect is produced by altering cellular calcium metabolism and the drug interferes with calcium movement within the vascular smooth muscle that is responsible for initiating or maintaining a contractile state of smooth muscle. The peripheral vasodilatation results in reduced arterial blood pressure (diastolic more than systolic), reduced peripheral vascular resistance and increased heart rate and cardiac output. The preferential dilatation of arteries as compared to veins may lead to postural hypotension and increase in cardiac output as well.

Role in pregnancy

As the drug is a direct vasodilator and relaxes blood vessels, it is used to treat pre-eclampsia. It can also be used for heart failure as it reduces the amount of work that the heart has to do for pumping blood around the body. It has its main use in hypertensive emergencies. It is not the first choice antihypertensive for long term use in pregnancy as resistance to treatment and treatment failures are common.

Dosage and administration

This drug is given as 5mg IV bolus and then 10mg every 20 to 30 minutes to the maximum of 30 mg; it may be repeated if necessary. BP must be checked every 10 minutes, average maximal reduction occurs in 10 -80 minutes. The product must be used immediately after opening the vial and vial must be discarded if contains discolored solution. Consider using 500mg of crystalloid fluid alongside the first dose of hydralazine is administered.

Oral dose –10mg QID for 2-4 days then increase to 25 mg QID. Maximum oral dose is 200mg. Special precautions during pregnancy include decrease in uteroplacental flow, dizziness, palpitations, facial flushing, nausea and vomiting, epigastric pain etc.

Both, the injectable and oral formulations are freely available in India.

Drug interactions and precautions

- MAO inhibitors should be used with caution in patients receiving hydralazine.
- When other potent parenteral antihypertensive drugs, are used in combination with hydralazine, patient should be continuously observed for several hours for any excessive fall in blood pressure. The drug has been implicated in the production of myocardial infarction as it stimulates cardiac muscles. Hydralazine may increase pulmonary artery pressure with mitral valve disease.
- It should be used with caution in pts with cerebral vascular accidents
- Blood dyscrasias, consisting of reduction in hemoglobin and red cell count, leukopenia, agranulocytosis, and purpura, have been reported. If such abnormalities develop, therapy should be discontinued.
- It must be used with caution as it is a category C drug.

Adverse reactions

The following adverse reactions have been observed, but there has not been enough systematic collection of data to support an estimate of their frequency.

- Common: Headache, anorexia, nausea, vomiting, diarrhea, palpitations, tachycardia, angina pectoris.
- Less Frequent: Digestive-constipation, paralytic ileus; Cardiovascular-hypotension, paradoxical pressor response, edema
- Neurologic-peripheral neuritis, evidenced by paresthesia, numbness, and tingling; dizziness; tremors; muscle cramps, psychotic reactions characterized by depression, disorientation, or anxiety.
- Signs and symptoms of over dosage include hypotension, tachycardia, headache, and generalized skin flushing. Complications can include myocardial ischemia and subsequent myocardial infarction, cardiac arrhythmia, and profound shock

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CLINICAL UPDATE

An Overview of Anaemia in Pregnancy: Crucial Component of Maternal Health

Sheeba Marwah[1], Sonam R Topden[2], Sujata Das[3], Reenu Kanwar[4]
[1]Senior Resident, [2]Consultant, [3]Chief Medical Officer, [4]Postgraduate, Deptt. of Obst & Gynae, VMMC & Safdarjung Hospital, New Delhi

Anaemia is the commonest medical disorder in pregnancy with iron deficiency anaemia being the most common type. The world has about 1.16 billion people suffering from iron deficiency anaemia, as estimated in 2004[1]. According to WHO, India has the highest prevalence of anaemia among the South Asian countries. As per NFHS 2003-2006, 57.9% of pregnant women in India are anaemic. Half of the global maternal deaths due to anaemia occur in South Asian countries; India contributes about 80% of the maternal deaths due to anaemia in South Asia.

Definition of anaemia in pregnancy

- ***WHO***- Haemoglobin concentration <11gm/dl and haematocrit of <33%[2]
- ***CDC definition-*** Hb <11gm/dl during the first and third trimesters and <10.5gm/dl in the second trimester (to allow for the physiological fall due to haemodilution in second trimester)[3]
- ***FOGSI***- a cut off of 10 gm/dl for India[4]

Classification based on severity

	ICMR[5]	WHO[6]
Mild	10 – 11 gm/dl	9 – 11 gm/dl
Moderate	7 – 10	7 - 9
Severe	4 – 7	<7
Very severe	<4 decompensated	

Causes of anaemia during pregnancy[7]

1. *Acquired*
   - Iron-deficiency anaemia - commonest } 2 most common causes in pregnancy
   - Anaemia caused by acute blood loss
   - Anaemia of inflammation or malignancy
   - Megaloblastic anaemia
   - Acquired haemolytic anaemia
   - Aplastic
   - Hypoplastic anaemia
2. *Hereditary*
   - Thalassemias
   - Sickle-cell haemoglobinopathies
   - Other haemoglobinopathies
   - Hereditary haemolytic anaemia

Effects of anaemia on pregnancy outcome

Maternal effects:

Antenatal

- Poor weight gain
- Preterm labour
- Preeclampsia
- Abruptio placentae
- Inter current infections
- PROM

Table 1: Physiological changes in the erythrocyte homeostasis in pregnancy

Characteristic	Normal Adult Women	32-34 Weeks Gestation
Plasma volume (ml)	2600	3850
Red cell mass (ml)	1400	1640-1800*
Haemoglobin (g/dl)	12-14	11-12
Red Blood Cells (10*6 /mm*3)	4-5	3-4-5
Packed cell volume	0.36-0.44	0.32-0.36
Mean corpuscular volume	80-97	70-95
Mean corpuscular haemoglobin (pg)	27-33	26-31
Mean corpuscular haemoglobin concentration (%)	32-36	30-35
Serum Iron (µg/dl)	60-175	60-75
Total Iron Binding Capacity (µg/100ml)	300-350	350-400
Percentage Saturation (%)	30	15
Requirements of iron (mg/day)	1.5-2.0	4.0

Intranatal

- Dysfunctional labour
- Haemorrhage& shock
- Cardiac failure

Postnatal

- Puerperal sepsis
- Subinvolution
- Embolism
- Failure of lactation
- Delayed wound healing
- Cardiac failure

Fetal effects

- Preterm birth
- IUGR
- Low birth weight
- High prevalence of failure to thrive
- Low mental development at 12,18,24 months of age[8]
- Cardiovascular morbidity and mortality in adult lives

Screening for anaemia

- Haemoglobin with RBC indices is done at the 1st ANC visit
- Haemoglobin should be repeated again at 28 weeks[9].
- Screen for thalassemia if MCV <80 fl with normal haemoglobin or mild anaemia.

Evaluation of anaemic patient

History

1. Assess the severity of anaemia and presence of:
   - Palpitation
   - Dyspnoea
   - Chest pain
   - Vomiting
   - Breathlessness
   - Weakness
   - Lassitude
   - Fatigue
   - Exhaustion
   - Swelling all over body
2. Determine cause: (Malnutrition, malabsorption, haemolysis, chronic infections)
   - Bleeding; number of episodes & duration
   - Abortion; interference, operation
   - Abdominal pain, fainting attacks, vomiting
   - Blood transfusion
   - Haematemesis, melena, menorrhagia
   - Any chronic illness-TB, malaria, UTI, epilepsy, rheumatoid arthritis & jaundice
   - Passing worms in stools
3. Nutritional history: vegetarian or non-vegetarian, calorie protein and iron intake
4. Obstetric history: interval between pregnancies, h/o APH, PPH.

Examination

- Pallor- conjunctiva, tongue, palms, nail beds, vagina
- Stomatitis, glossitis, koilonychia
- JVP, oedema (pedal, vulval, abdominal wall oedema, generalized)
- CVS- systolic murmur
- Chest- crepts, rhonchi
- P/A-hepatosplenomegaly
- Uterine fundal height in comparison with period of gestation, uterine contour, foetal heart rate, uterine contractions, scar tenderness
- L/E- leaking or bleeding P/V

Investigations

Following investigations should be done for all cases of anaemia:-

1. Haemogram with red cell indices
2. Platelet count
3. Reticulocyte count (Initially for diagnosis of suspected haemolytic anaemias), to be repeated after 10 days of starting therapy to check response
4. Peripheral smear: Thin (for type of anaemia) & thick (for malaria)
5. Red cell distribution width (RDW)
6. Total proteins and A: G ratio
7. Stool for ova & cyst (3 specimens) and to rule out occult blood
8. Urine routine & microscopy, culture & sensitivity

Additional investigations in selected/refractory cases:

1. X-Ray Chest (with abdominal shield) in suspected TB
2. Liver function test if h/o jaundice, or haemolytic picture on P/S
3. Electrophoresis (if suspicion of thalassemia- microcytic hypochromic picture with normal MCHC, and decreased RDW)
4. Renal function tests
5. Thyroid function

6. Serum iron, TIBC, ferritin

   Serum ferritin: Levels less than 10-15 mg/l confirm iron deficiency anaemia[10].
7. Serum B12, folic acid (in consultation with haematologist)
8. Bone marrow aspiration (in consultation with haematologist) in refractory anaemia (no response to treatment after 4 weeks of therapy), pancytopenia (RBC WBC and platelets: all are low), aplastic anaemia, leukaemia, lymphomas, diagnosis of kala azar.

Management of iron deficiency anaemia

Prevention *(Hb ≥ 11 g/dl)*

- 1st trimester Folic acid 400 µg daily.
- 2nd & 3rd trimester:

  W.H.O recommendation: Universal oral iron supplementation for pregnant women; 30-60 mg of elemental iron and 400 µg of folic acid in pregnancy[11].

  Ministry of Health, Govt. of India recommendation: 100 mg of elemental iron with 500 µg of folic acid in second half of pregnancy for at least 100 days. [6]
- Treatment of hook worm infestation: Single albendazole (400 mg) or mebendazole (100 mg BD x 3 days), change in defecation habits and avoidance of walking bare footed.
- Improvement of dietary habits and improving bio availability of food iron: Iron rich preparations with Vitamin C & high proteins such as, green leafy vegetables, beans, sprouted dals, jaggery & chana, carrots, bananas, citrus fruits, nuts, figs eggs, red meat (avoid halal meat)and liver.
- Iron fortification of food.

Treatment

Mild anaemia

- 1st trimester, folic acid 500 µg daily
- 2nd & 3rd trimester: Orally 100mg elemental iron BD & 500µg folic acid OD till haemoglobin becomes normal, then once daily for 3months and at least 6 weeks post-partum to replenish iron stores.

Moderate anaemia

- 1st trimester, folic acid 500 µg daily
- 2nd & 3rd trimester-

  one tablet of 100mg iron TDS & 500µg folic acid BD till haemoglobin is normal then one tablet daily for 3-6 months; deworm after 1st trimester (in all cases)

  Check response with increase in reticulocyte count after 10 days or a haemoglobin concentration rise by approximately 2g/dl over 3-4 weeks.[12]

If no response

i. Ensure compliance by asking the colour of stools (black if taking iron)
ii. Any intolerance (diarrhoea or constipation)
iii. Change the preparation/ shift to parenteral therapy.

Severe Anaemia

- Admit the patient to obstetric ward (if period of gestation > 26 weeks),
- Refer for admission to haematology/ medicine ward (gestation < 26weeks)
- In 1st trimester, rule out abortion, H mole, ectopic pregnancy.
- In 2nd & 3rd trimester, rule out abruption & rupture uterus.
- Investigations to be sent as described above
- Take informed high-risk consent
- 1st & 2nd trimester: oral / parenteral iron or blood transfusion if indicated as given below
- In 3rd trimester blood transfusion (packed cells) under lasix cover or partial exchange transfusion) and oral or parenteral Fe.
- Take medicine referral if CHF/ other complications, haematology referral if refractory anaemia.

Parenteral iron therapy

- Indications- absolute non- compliance with, or intolerance to, oral iron therapy or proven malabsorption.[13]
- Equivalent increase in haemoglobin levels occur with oral and parenteral therapy.[14]
- Contraindications-H/o allergy, arthralgia, previous allergy to preparation.
- Parenteral iron preparations

  Ferrous sucrose safer than Iron Dextran[15]

  Newer preparations iron III carboxymaltose and iron III isomaltoside (single dose administration in an hour or less) [16]
- Estimation of total requirement: 0.3 X W (100-Hb %) gm of elemental iron + addition of 50%; (W= weight in lbs)

Use of recombinant erythropoetin

- Used in severe anaemia & renal failure
- Inj erythropoetin can be given subcutaneously or intravenously 10-15 iu/kg on day 1, 3 & 5 along with parenteral iron, on day 1, 3 & 5 after S/C sensitivity test; adrenaline, hydrocortisone, oxygen to be kept ready. Produces 3gm% rise in haemoglobin over a 2 week period

Blood transfusion

Pregnancy less than 36 weeks

- Hb ≤ 5 g/dl, even without clinical signs of cardiac failure or hypoxia.
- Hb between 5 and 7 g/dl in the presence of following conditions:
  - Established or incipient cardiac failure or hypoxia
  - Malaria, pneumonia or any other serious bacterial infection
  - Pre-existing heart disease, not casually related to the anaemia

Duration of pregnancy 36 weeks or more

- Hb ≤ 6g/dl, even without clinical signs of cardiac failure or hypoxia.
- Hb between 6 and 8 g/dl -in the presence of following conditions:
  - Established or incipient cardiac failure or hypoxia
  - Malaria, Pneumonia or any other serious bacterial infection
  - Pre-existing heart disease, not casually related to the anaemia
- Elective LSCS -H/O APH, PPH, previous LSCS- Hb of 8 to 10 g/dl , blood to be made available and transfused if required.
- Decision to perform blood transfusion should be made on both clinical and haematological grounds. Blood transfusion is almost always required when the Hb is less than 6 g/dl. It should also be remembered that patients with acute haemorrhage can have normal Hb; hence the clinical evaluation of the patient in this situation is extremely important[17].

Antenatal care

- More frequent visits
- Vigilance for detection and management of complications of anaemia, such as heart failure or preterm labor
- Fetal monitoring for growth and well-being

Management during labour

1) First stage- Comfortable position
   Arrangement for oxygen
   Asepsis
   Antibiotic prophylaxis
1) Second stage- Prophylactic low forceps/ vacuum delivery.
2) Third stage- Active management

During puerperium

- Adequate rest
- Exchange transfusion in severe anaemia with sepsis & cardiac failure
- Iron and folate therapy for 3 months
- Infection if any should be treated energetically
- Careful watch for puerperal sepsis, failing lactation; sub involution of uterus and thromboembolism.

Contraception[18]

- Sterilization is preferred if the family is completed.
- If there is no history of menorrhagia, an intra-uterine device can be inserted. Post partum IUCD is also a good option.
- Levonorgestrel intrauterine device (Mirena) can be used in presence of menorrhagia for contraception.
- Barrier methods can be safely given, but their higher failure rate is a disadvantage.

Megaloblastic anemia

- Deficiency of folate or B12; folate is essential for normal growth and development.
- Often coexists with iron deficiency anaemia
- Diagnosis: macrocytes on peripheral smear, hypersegmentation of neutrophils, pancytopenia, low Hb and high MCV, megablastosis on bone marrow, serum folate <3ng/ ml
- Most of the cases are due to folic acid deficiency and can be treated by Tab folic acid 5 mg daily to be continued for at least 4 weeks postpartum.
- In case of gastric intolerance or malabsorption, parenteral therapy is indicated.

Thalassemia in pregnancy

- HbA2 (á2 ã2) is increased more than 3.5 %, HbF (á2 ã2) is usually increased to more than 2%.
- Basophilic stippling of the erythrocytes may be seen.
- *Diagnosis of beta thalassemia minor is suspected when the MCV <75 fl and RBC > 4.5 – 5.0 million cells/ µL.*

Sickle cell anemia in pregnancy

- Most common hemoglobinopathy encountered during pregnancy.
- Is an autosomal recessive condition and is caused by substitution of valine for glutamine in position 6 in the beta-globin chain of the hemoglobin molecule
- Characterized by chronic hemolytic anemia and by the occurrence of acute, life-threatening occlusive crisis
- These women maintain Hb mass by intense hemopoiesis to compensate for the markedly shortened erythrocyte life span.

- Pain is from intense sequestration of sickled erythrocytes with infarction in various organs.
- Management- opioids for severe pain; oxygen and prophylactic transfusions to prevent further vaso-occlusive episodes and pain crises.
- Labour and delivery management is identical to that for women with cardiac disease.

Conclusion

Universal antenatal care and iron prophylaxis is very important to target this important public health problem in our country; aggressive management of anaemia from the time of detection so as to normalize the levels by the time of delivery is crucial to decrease maternal morbidity and mortality.

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18. WHO Medical eligibility criteria for contraceptive use 2015

The Chinese in early 50's were going through a big baby boom period and the doctors were over-stretched. They devised a way of avoiding repeated visits by would be mothers. This is how the story goes:

A young Chinese woman, three months pregnant went to see her local government obstetrician doctor who was very busy, his compounder saw her and asked her to quickly bare her tummy. He then reached into his desk and took out a rubber stamp, which he pressed below her navel and asked the young lady to go home.

At home, she and her curious husband tried to read the tiny Chinese words printed on her belly, but they were too small. They then got a magnifying glass and tried to read the words; the stamp read: "When your husband can read this without the magnifying glasses, it's time to come to the hospital.

-*Contributed by* Dr Sumitra Bachani

❋❋❋

Nurse: "Have you noticed, Doctor, that there have been a lot of twins lately?" Doctor: "Seeing how things are bad now-a-days, they are probably scared to come alone.

❋❋❋

Mrs.Smith a mother of nine children, was expecting her tenth within a few days, complained: "I'm tired of having babies."
"Then why don't you stop? Asked her gynaecologist.
Mrs. Smith replied," It's the only way i know of to keep the youngest from being spoiled.

CASE REPORT

Idiopathic Pulmonary Artery Hypertension in Pregnancy: A Case Report

Karishma Thariani[1], Achla Batra[2], Aruna Batra[3], Rekha Bharti[4]

[1,4]Assistant Professor, [2]Consultant & Associate Professor, [3]Professor

Deptt. of Obs & Gynae, [1]LHMC & SSK Hospital, New Delhi, [2,4]VMMC & Safdarjung Hospital, New Delhi, [3]SGT Medical College, Gurgaon

Mrs S, 27y, G2A1, was referred from Patna at 24^{+3}weeks gestation as a case of idiopathic pulmonary artery hypertension(IPAH) with the complaints of dyspnoea on exertion for 2 years; orthopnoea and dry cough x 2 months; dyspnoea at rest x 10 days. There was no history ofsyncope, chest pain, palpitations, haemoptysis, cyanosis, fever, thromboembolic event, smoking or alcohol intake, chronic pulmonary disease or chronic medical or surgical illness. She took ATT for two years for pulmonary tuberculosis. She had been married for 4 years and her first pregnancy had ended in a spontaneous abortion at 8 wks for which a surgical evacuation was done. On examination, the patient was dyspnoeic at rest, PR- 110/min, BP- 110/60 mm of Hg, RR- 24/min, and Temp: 98.4 F. She had mild pallor, clubbing, pedal oedema and her JVP was raised. On auscultation her breath sounds were normal vesicular in nature. CVS examination revealed a grade III RV heave, palpable P2, systolic thrill, normal S1, loudP2, and a pansystolic murmur in LLSB not varying with respiration.On per abdominal examination a gravid uterus corresponding to 24 wks gestation was palpable. Her routine investigations and serum electrolytes, KFT, LFT, TFT and coagulation profile were within normal limits. Second trimester ultrasound showed a single live fetus in breech presentation with fundal placed placenta, adequate liquor and no fetal anomaly; X-ray chest showed cardiomegaly (Fig 1). ECG showed RV hypertrophy and RV strain. Echo was done which showed moderate TR, mild PR, dilated RA/RV, right ventricular systolic pressure 55.7mmHg , LVEF= 65% (Fig 2)

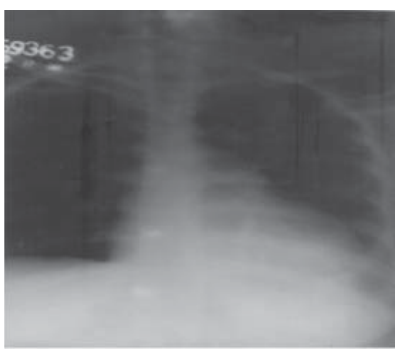

Fig 1: chest x ray showing cardiomegaly.

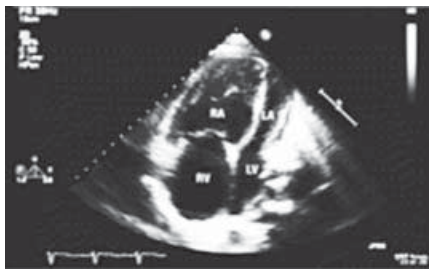

Fig 2: Echo image showing dilated right atrium and ventricles.

A cardiology consultation was taken and she was started on oxygen, lasix, digoxin, ecospirin and tablet sildinafil 25mg. Patient improved symptomatically, from grade IV dyspnoea to grade II dyspnoea, but orthopnea persisted.

Patient deteriorated again at 29 wks gestation and developed Grade IV dyspnoea. A repeat ECHO showed severe TR, RVSP of 103mmHg. The dose of tablet sildenafil was increased to 50 mg and tablet dilzem 30 mg was added to her treatment. She was also given 2 doses of steroid injection for fetal lung maturity. Elective LSCS with B/L tubal ligation was done under combined spinal and epidural anaesthesia at 31 weeks for breech presentation with uncompensated IPAH. A 1.7 kg girl baby with an apgar score of 8 at 5 minutes was delivered. The baby was admitted to nursery due to prematurity and respiratory distress.The post-operative period was uneventful for the first 5 days. Patient developed grade IV dyspnoea on day 6. Echo showed an increased RVSP of 129 mmHg s/o severe IPAH. Tab. Bosentan 62.5mg was added. The patient was discharged with baby on day21 with grade II dyspnoea. After one month, she was readmitted in cardiology ward with right heart failure. She was managed conservatively and discharged after 2 wks with Grade II dyspnoea.

Discussion

Primary pulmonary hypertension is a rare disease that particularly affects women of childbearing age. It is characterized histologically by the presence of medial hypertrophy, intimal fibrosis and often fibrinoid necrosis, arteritis and plexiform lesions in the pulmonary vasculature. It is a rare disease with an incidence of 2

cases per million. The age group ranges from infancy to 60 years of age. This disease can be defined clinically by a persistently raised PA pressure (mean pressure >25 mmHg at rest or >30 mmHg during exercise) without an obvious aetiology[1].

In an overview by Weiss et al, the maternal mortality of primary pulmonary hypertension in pregnancy was reported to be 30%, compared to 56% in an earlier study. Most of the deaths were in the third trimester, with the highest risk in the first 10 days postpartum. Chronic maternal hypoxia associated with this condition can lead to intrauterine growth retardation in the foetus. In view of the high maternal mortality, preconception counselling is of vital importance if feasible. In cases of unplanned pregnancy or diagnosis early in pregnancy, termination should be considered. If pregnancy is to be continued, further management requires a multidisciplinary team in a tertiary level hospital with intensive cardiac care unit facility.[2, 3]

For the diagnosis of this condition the standard is invasive pulmonary artery catheterisation, but non-invasive echocardiography can also provide a good estimate. Hence invasive testing should be individualised depending on the availability of resources and operator experience.

The principles of treatment include limitation of activity, avoidance of supine position in pregnancy, oxygen supplementation and use of diuretics & vasodilator drugs. Vasoconstriction from a reduction of nitric oxide and prostacyclin, together with an increase in endothelin and thromboxane in the vascular endothelium and smooth muscle, is important in the pathogenesis of primary pulmonary hypertension.[4, 5] Various vasodilator treatments have been tried in the past, and agents showing benefits include O2, oral calcium channel blockers, continuous intravenous prostacyclin, phosphodiesterase 5 inhibitor, inhaled nitric oxide, nebulized prostacyclin or its stable analogue Iloprost and endothelin receptor antagonist like bosentan. We used sildenafil, bosentan and calcium channel blockers in the management of our patient. Sildenafil and bosentan are both US FDA approved for the management of idiopathic pulmonary artery hypertension.

Lung transplant is the only curative treatment available for this condition. It is recommended for patients who continue to manifest right heart failure while on intravenous prostacyclins.

Idiopathic pulmonary artery hypertension is a clinically challenging condition which needs multidisciplinary approach for its optimal management. Good feto-maternal outcomes can be ensured by timely diagnosis and start of optimal treatment. These patients require in patient monitoring and planned delivery in consultation with experts from obstetrics, neonatology, anaesthesiology, cardiology and critical care.

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Journal Scan

Sunita Malik[1], Deepika[2]
[1]Professor & Consultant, [2]Senior Resident, Department of Obstetrics & Gynaecology, VMMC & Safdarjung Hospital, New Delhi

Maternal iron deficiency anemia as a risk factor for the development of retinopathy of prematurity

Dai AI, Demiryürek S, Aksoy SN, Perk P, Saygili O, Güngör K. Pediatr Neurol 2015 Aug;53(2):146-50.

Background: Retinopathy of prematurity is a proliferative vascular disease affecting premature newborns and occurs during vessel development and maturation. The aim of this study was to evaluate the maternal iron deficiency anemia as possible risk factors associated with the development of retinopathy of prematurity among premature or very low birth weight infants. **Methods:** In this study, mothers of 254 infants with retinopathy of prematurity were analyzed retrospectively, and their laboratory results of medical records during pregnancy were reviewed for possible iron deficiency anemia. **Results:** In a cohort of 254 mothers of premature infants with retinopathy of prematurity, 187 (73.6%) had iron deficiency, while the remaining 67 (26.4%) mothers had no deficiency. Babies born to mothers with iron deficiency anemia with markedly decreased hemoglobin, hematocrit, mean corpuscular volume, serum iron, and ferritin levels were more likely to develop retinopathy of prematurity. **Conclusions:** Our results are the first to suggest that maternal iron deficiency is a risk factor for the development of retinopathy of prematurity. Our data suggest that maternal iron supplementation therapy during pregnancy might lower the risk of retinopathy of prematurity.

Metformin for the treatment of gestational diabetes: An updated meta-analysis.

Kitwitee P, Limwattananon S, Limwattananon C, Waleekachonlert O, Ratanachotpanich T, Phimphilai M, Nguyen TV, Pongchaiyakul C.
Diabetes Res Clin Pract. 2015 May 14. pii: S0168-8227(15)00247-8. doi: 10.1016/j.diabres. 2015.05.017. [Epub ahead of print]

Objective: To assess the efficacy of metformin and insulin in the treatment of pregnant women with gestational diabetes mellitus (GDM). **Methods:** A meta-analysis was conducted by including randomized controlled trials comparing metformin and insulin in GDM. An electronic search was conducted to identify relevant studies. Data were synthesized by a random effects meta-analysis model. A Bayesian analysis was also performed to account for uncertainties in the treatment efficacy. **Results:** Eight clinical trials involving 1712 individuals were included in the final analysis. The pooled estimates of metformin-insulin differences were very small and statistically non-significant in fasting plasma glucose, postprandial plasma glucose and HbA1c, measured at 36-37 weeks of gestation. Notably, 14-46% of those receiving metformin required additional insulin. Compared with the insulin group, metformin treatment was associated with a lower incidence of neonatal hypoglycemia (relative risk, RR 0.74; 95% CI 0.58-0.93; P=0.01) and of neonatal intensive care admission (RR 0.76; 95% CI 0.59-0.97; P=0.03). Bayesian analysis revealed that the efficacy of metformin was consistently higher than insulin with a probability of over 98% on these two neonatal complications. Other outcomes were not significantly different between the two treatment groups. **Conclusion:** In women with gestational diabetes, metformin use and insulin therapy have comparable glycemic control profile, but metformin use was associated with lower risk of neonatal hypoglycemia.

The risk of infant and fetal death by each additional week of expectant management in intrahepatic cholestasis of pregnancy by gestational age

Puljic A, Kim E, Page J, Esakoff T, Shaffer B, LaCoursiere DY, Caughey AB. Am J Obstet Gynecol.
2015 May; 212(5): 667.e1-5. doi: 10.1016/j. ajog.2015.02.012. Epub 2015 Feb 14.

Objective: The objective of the study was to characterize the risk of infant and fetal death by each additional week of expectant management vs immediate delivery in pregnancies complicated by cholestasis. **Study design:** This was a retrospective cohort study of 1,604,386 singleton, non-anomalous pregnancies of women between 34 and 40 weeks' gestation with and without intrahepatic cholestasis of pregnancy (ICP) in the state of California during the years of 2005-2008. International Classification of Diseases, 9th version, codes and linked hospital discharge and vital statistics data were utilized. For each week of gestation, the following outcomes were assessed: the risk of stillbirth, the risk

of delivery (represented by the risk of infant death at a given week of gestation), and the composite risk of expectant management for 1 additional week. Composite risk combines the risk of stillbirth at this gestational age week plus the risk of infant death if delivered at the subsequent week of gestation. **Results:** Among women with ICP, the mortality risk of delivery is lower than the risk of expectant management at 36 weeks' gestation (4.7 vs 19.2 per 10,000). The risk of expectant management remains higher than delivery and continues to rise by week of gestation beyond 36 weeks. The risk of expectant management in women with ICP reaches a nadir at 35 weeks (9.1 per 10,000; 95% confidence interval, 1.4-16.9) and rises at 36 weeks (19.2 per 10,000; 95% confidence interval, 7.6-30.8). **Conclusion:** Among women with ICP, delivery at 36 weeks' gestation would reduce the perinatal mortality risk as compared with expectant management. For later diagnosis, this would also be true at gestational ages beyond 36 weeks. Timing of delivery must take into account both the reduction in stillbirth risk balanced with the morbidities associated with preterm delivery.

Proceedings of Monthly AOGD Clinical Meeting held at AIIMS on 21st August, 2015

Compiled by Archana Misra
Assistant Professor, Obstetrics & Gynaecology, VMMC & Safdarjung Hospital, New Delhi

Two interesting cases, a presentation on fetal therpy and a video of examination of sexual assault survivor were discussed.

Case 1

Aortic dissection in pregnancy

Kriplani A, Sharma JB, Devagourou, Amol, Chawla Latika

A 26 year female, G3 P2L2 at 37 week 1 day was referred to the AIIMS casualty with the complaints of difficulty in breathing and severe chest pain for the last 3-4 days. The patient was admitted to the labour room and immediate cardiology and cardiothoracic surgery evaluation were sought. The patient underwent urgent ECHO and CT angiography and a diagnosis of Type A aortic dissection was made. The patient was shifted to the CTVS OT and Emergency LSCS with B/L uterine artery ligation with Bentall's procedure was performed. The surgery lasted for almost 10 hours and the patient received 5 units of PRBS intraoperatively. Baby and mother were discharged in stable condition on post op day 5.

Conclusion: Acute Aortic dissection is a serious cardiac illness that can lead to great deal of morbidity and mortality to the mother and fetus. This disease can mimic other causes of chest pain so high index of suspicion, prompt action and a multidisciplinary approach is needed to save the life of the patient.

Case 2

Unusual vulvo -vaginal mass

Parthasarathy A, Vatsa R, Singh N, Kumar S, Meena J, Singhal S

A 45 year old P3L3 female presented with mass arising in perineum for 2 years. It was not increasing with coughing, straining or passing stools. Examination showed 9 ×8 cm irregular firm to cystic mass arising from posterior wall of vagina extending into gluteal region, 10×10 cm right gluteal mass. CECT showed a well defined 12×10×8 cm mass in right side of perineum from right lower lateral vaginal wall with extension in ischiorectal fossa**.** No extension into cervix, bladder, rectum and no lymphadenopathy. Wide local excision under GA was done through perineum. Histopathology showed aggressive angiomyxoma (AAM) of vagina. Post operative course was uneventful. She was discharged on post operative day 5. She is following with us in good general condition.

Conclusion: AAM is a rare, slow-growing soft tissue tumor of mesenchymal origin. Less than 250 cases have been reported since then. It is a soft, non encapsulated tumors finger like projection infiltrating into soft tissue. Peak incidence is in 40s. It has variable presentation like vulval nodule / polyp, perineal hernia, Bartholin's cyst, labial or Gartner's duct cyst. Treatment is by wide local excision. Radiotheraapy,&embolisation. Medical treatment in form of GnRH analogue has been tried but not very effective.

Fetal therapy: exploring the possibilities

Dipika Deka, Vatsla Dadhwal, Nutan Agarwal, K Aparna Sharma

Fetal Medicine Unit Department of Obstetrics and Gynecology, AIIMS

Fetal therapy is an evolving branch of obstetrics. It started with invasive procedures for prenatal diagnosis and later on various procedures for fetal therapy were evolved. After the success of intruterine transfusions in the mangement of Rh isoimmunisation, now there is an increasing role of lasers in Fetal therapy. The indications for laser therapy include TTTS, selective fetal reduction and ablation of congenital cystic adenomatoid malformations. The unbalanced vascular anastomoses between the two MCDA twins are selectively ablated using fetoscopic laser photocoagulation. In cases of MCDA twin with TRAP of severe IUGR in one twin or preterminal stage in one of the twins, one of the twins has to be selective reduced using vaso-occlusive techniques. Laser offers an alternative in these situations. CCAMs are hamartomous lesions of the pulmonary tract resulting in solid, cystic or microcystic lesion in the lungs which might lead to pressure effect, mediastinal shift and hydrops. Ablation of the mass using Laser can result in decrease in size of the mass.

Brain Teasers

Dr Monika Gupta
Assistant Professor
Dept. of Obs & Gynae, VMMC & Safdarjung Hospital, New Delhi

We have been receiving an overwhelming appreciation for the bulletin from all our members. This newly introduced section of Brain-teasers has received a special mention. Our members' participationin form of response to the Quiz will be a value addition to our endeavours. We have a **lucky dip** for all the right answers received and winner's name will be announced in the next monthly AOGD clinical meeting. So, mail your answers to **aogdsjh2015@gmail.com within 7 days of receipt of the bulletin.**

1. Basophilic stippling of erythrocytes on peripheral smear is seen in which of the following condition:
   a. Megaloblastic anaemia
   b. Sickle cell anaemia
   c. Thalassemia
   d. Iron deficiency anaemia

2. Which of the following parameters is not a severe feature to be considered with preeclamplsia
   a. Impaired LFT's
   b. Proteinuria > 2+
   c. Thrombocytopenia < 1 Lac/µl
   d. Serum creatinine > 1.1mg/dl

3. Magnesium sulphate given in cases of preeclampsia with severe features has an additional benefit other than preventing seizures
   a. Reduces preterm labour
   b. Reduces placental abruption
   c. Reduces pulmonary edema
   d. Improves platelet count

4. Acute fatty liver of pregnancy is commonly seen in all of the following except
   a. Primigravida
   b. Twin pregnancy
   c. Hyperthyroidism
   d. Male births

5. Whichof the following can be given in protracted cases of hyperemesis gravidarum
   a. Levosulpiride
   b. Methyl prednisolone
   c. Cisapride
   d. Domperidone

6. Gestational hyperthyroidism is associated with following conditions of pregnancy except
   a. Hyperemesis gravidarum
   b. Intrahepatic cholestasis
   c. Hydatidiform mole
   d. Twin pregnancy

7. Which of the following is true regarding the glycaemic control to be realised with type 1 or type 2 diabetes mellitus in pregnancy
   a. Overnight glucose 100-120 mg/dl
   b. HbA1c < 6%
   c. Peak postprandial glucose 120-140 mg/dl
   d. Premeal glucose 100-110mg/dl

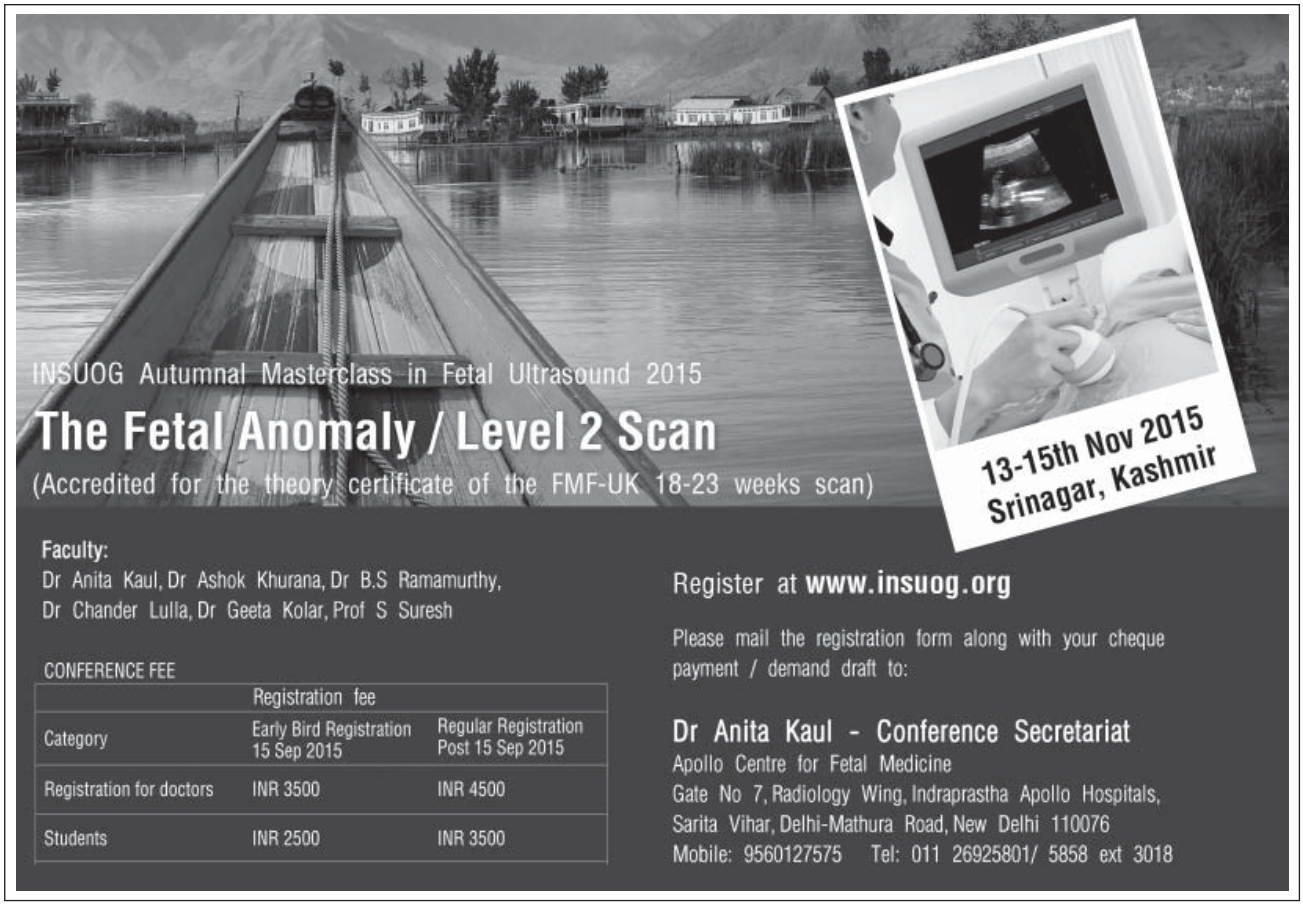
8. In a patient of chronic renal disease with pregnancy requiring frequent hemodialysis, the predialysis urea to be maintained should be below
   a. 25-30 mg/dl
   b. 35-40 mg/dl
   c. 40-45 mg/dl
   d. 45-50 mg/dl

9. In a woman undergoing renal transplantation from a deceased donor, pregnancy should be allowed after
   a. 6 months
   b. 12 months
   c. 18 months
   d. 24 months

10. As regards principles of anticoagulation in cardiac disease in pregnancy which of the following is not correct
    a. INR to be maintained at 1.5-2.5
    b. Heparin to be stopped during labour and at least six hours before caesarean
    c. Warfarin therapy can be resumed 6 hours postpartum
    d. Heparin therapy can be resumed 24 hours post caesarean section

Answers to quiz 4: 1. c; 2. a; 3. b; 4. b; 5. c; 6. a; 7. b; 8. b; 9. c; 10. b

Winner of the Quiz 4: Dr Jayshree Pathak, Consultant, Rainbow IVF, Delhi. Congratulations!



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Dr Sonal Bathla

Organizing Secretory: **Dr Priti Arora Dhamija**

Programme Highlights: POPQ Classification, Urodynamic Principles, Video Sessions on Uterovaginal Prolapse, Vault Prolapse & Sling Surgery, Trouble Shooting, Stimulated Hands on Station.

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Geeta (Secretary, Mob: 9716123283)

Workshop Secretariat: Department of Obstetrics & Gynaecology, Sant Parmanand Hospital, 18, Shamnath Marg, Civil Lines, Delhi-110054.

Workshop on Multi Disciplinary Approach to "Domestic Violence Against Women"

In Associaion of Royal College of Obstetricians & Gynaecologists(RCOG), Association of Obstetricians & Gynaecologists of Delhi(AOGD)

On Sunday, 29th November, 2015
At Auditorium, Sant Parmanand Hospital, 10:00am to 01:00pm

Chairperson: **Dr Nirmala Agarwal**
Dr Sonal Bathla

Organizing Secretory: **Dr Arbinder Dang**

Programme Highlights: Domestic Violence - Approach to Patients, Lectures by Gynaecologist & Psychologist, OSCE Scenario, Panel Discussion by Gynaecologist, Psychologist, Psychatrist, Pediatrician, Social Worker & Police Official.

Registration: Rs.500/-for Delegates, Postgraduates, DNB Students & Faculty & Rs.800/- Spot Registration. Cheque in favour of "Sant Parmanand Hospital" payable at New Delhi"

For Registration Contact: Dr Arbinder Dang (9871356917), Email ID:arbidang@yahoo.co.in
Geeta (Secretary, Mob: 9716123283)

Workshop Secretariat: Department of Obstetrics & Gynaecology, Sant Parmanand Hospital, 18, Shamnath Marg, Civil Lines, Delhi-110054.

Postal Registration No. DL -SW -1/4170/15-17
September 14-15, Date of Publication, September 7-8
Registered with Registrar of Newspapers for India
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