AOGD BULLETIN

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Enlightening the Path for Next Generation of Gynaecologists

Dedicated Issue:

Medical Disorders in Pregnancy: An algorithmic approach

AOGD SECRETARIAT

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AOGD Bulletin

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From the President's Pen

Dear Friends,

Greetings from AOGD

This deciated issue of AOGD Monthly Bulletin on 'Medical Disorders in Pregnancy" is in your hand. We all strive to achieve a Healthy and Safe Motherhood but on occasions pregnancy is complicated by disorder, which compromise maternal outcome and affects various statistics associated with child birth. In India we have made tremendous achievement in reducing maternal mortality rate to current level of 134/100000 live birth. Such a thing has been possible with active efforts of all of you. To have latest knowledge about various disorders that will help improve outcomes further we present this issue of AOGD Bulletin to you.

Happy Reading

Dr Sunesh Kumar
President, AOGD

From the Secretary's Desk

Dear Friends,

Greetings from AOGD.

The November issue of AOGD bulletin dedicated to contraception has been received with great enthusiasm. I thank one and all for it.

Continuing with the theme of "Enlightening the Path of Next Generation of Gynaecologists", the present issue is dedicated to Medical disorders in Pregnancy. In this issue of the bulletin, we intend to provide management algorithms and practice points for the various medical disorders in pregnancy as easy reference for practitioners and students at large. As the algorithms incorporates current guidelines, it will prove to be very useful for all generations of obstetricians.

This was a busy month that saw many conferences and CME being organized.

A conference on Aesthetic Gynaecology was organized on 9th & 10th November, 2019 by Indian Academy of Cosmetic Dermatology & Gynecology Under the aegis of AOGD & FOGSI .

An Update in Gynaecologic Oncology was organized on 13th November, 2019 under the aegis of Oncology Committee of AOGD at AIIMS, New Delhi

A CME on "Tackling Obstetric Dilemmas" was organized on 16th November, 2019 at The Surya under the aegis of FOGSI Medical Disorders in Pregnancy Committee & AOGD.

Qyality improvement Workshop was organized on 16th November, 2019 at MAMC & LNJP Hospital under the aegis of Quality Improvement Sub-committee AOGD.

A CME on "High Risk Pregnancy" on 16th November 2019, was organized under aegis of Safe Motherhood Committee AOGD at ESI Basaidarapur.

Breast Cancer screening Health Camp was organized on 19th November, 2019 by GTB under the aegis of Rural Health Committee, AOGD.

NARCHI pre congress workshop on "PPH" on conducted on 22nd November under aegis of Safe Motherhood Committee AOGD at the Northern Railway Hospital.

A CME was organized under the aegis of DGF North, Breast and Cervical cancer awareness screening & prevention subcommittee AOGD & Breast committee FOGSI on 27th November, 2019.

We look forward to your continued support.

I take this opportunity to wish a Happy, Healthy and Prosperous 2020

Warm Regards

Dr Vatsla Dadhwal
Hon. Secretary

Monthly Clinical Meeting

Monthly Clinical Meet will be held at Sir Ganga Ram Hospital, New Delhi on **Friday, 27th December, 2019 from 04:00pm to 05:00pm**.

From the Editor's Desk

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Dr Archana

Guest Editors

We are pleased to write from the editorial desk for this issue of AOGD Bulletin on the very special topic of 'Medical Disorders in Pregnancy'. The previous issue on 'contraception' was very much appreciated by our fellow AOGD members. With increasing age at conception, increasing obesity and better optimization of medical disorders, more women with medical disorders are now presenting with complex scenarios during pregnancy.

We have invited a group of eminent obstetricians to author articles that are both cutting edge and pertinent to changing obstetric practice. Our issue begins with an important article "Anemia in pregnancy" which is an important indirect cause of maternal mortality, an excellent starting point written by Dr JB Sharma and Dr Neha Varun. The survey on hypertensive disorders is a current, concise single reference for management of all hypertension during gestation. Comprehensive information on management of hypertensive disorders in pregnancy as well as the newer protocols for screening for preeclampsia have been discussed by Dr Aparna Sharma and Dr Archana Kumari. This is followed by an algorithm on HIV in pregnancy, a problem still in epidemic proportions in India written by Dr Rinchen Zangmo and Dr Rohini Sehgal. The next articles are related to medical autoimmune disorders like antiphospholipid antibody syndrome and SLE in pregnancy authored here by Dr Jyoti Meena, Dr Kusumlata and Dr Akansha Tiwari. We then shift focus to more well-known medical disorders, including a renewed assessment of pregnant woman with heart disease written by Dr Jyotsna Suri and Dr Zeba Khanam. The current reports on both gestational and pregestational diabetes highlighting recommendations on diagnosis and management has been prepared by Dr Garima Kachhawa and Dr Richa Vatsa. The management of pregnant women with chronic kidney disease has been elucidated beautifully by Dr Juhi Bharti and Dr Deepali Garg.

There is an article on liver disease in pregnancy authored by Dr Sharda Patra who has worked extensively in the field and an update on immunization in pregnancy written by Dr Vidushi Kulshrestha and Dr Soniya Dhiman. An algorithmic approach to Thyroid disease in pregnancy includes the most recent recommendations on antepartum and postpartum management by Dr Anubhuti and Dr Vatsla Dadhwal.

The opportunity to edit this issue of AOGD has been challenging, rewarding, and a learning experience. We hope you will find these articles as interesting and valuable as we have.

We wish our esteemed readers a happy reading and shall welcome their comments and contributions to further improve the bulletin.

Editorial Team

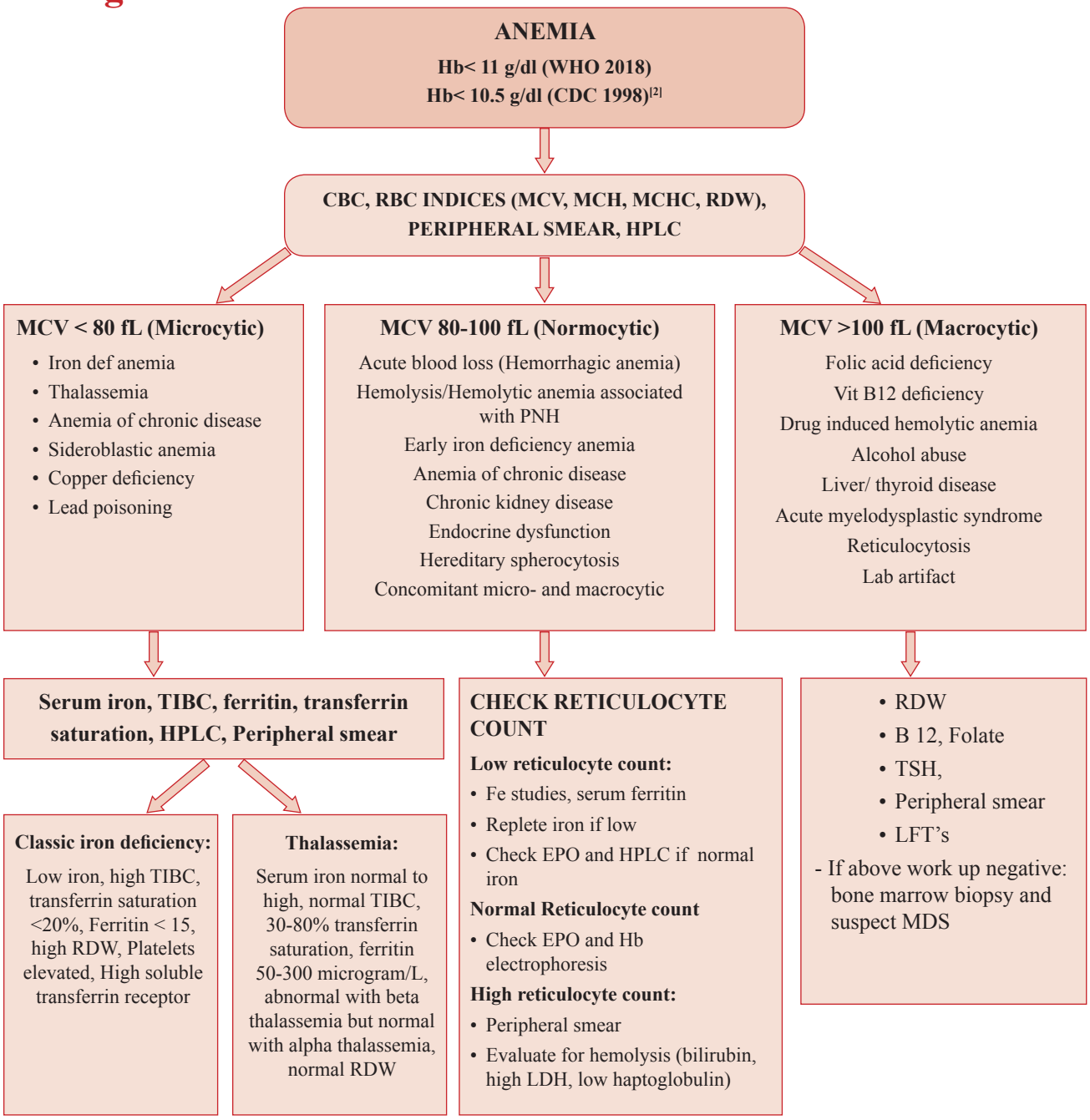
Anemia in Pregnancy: Diagnosis and management

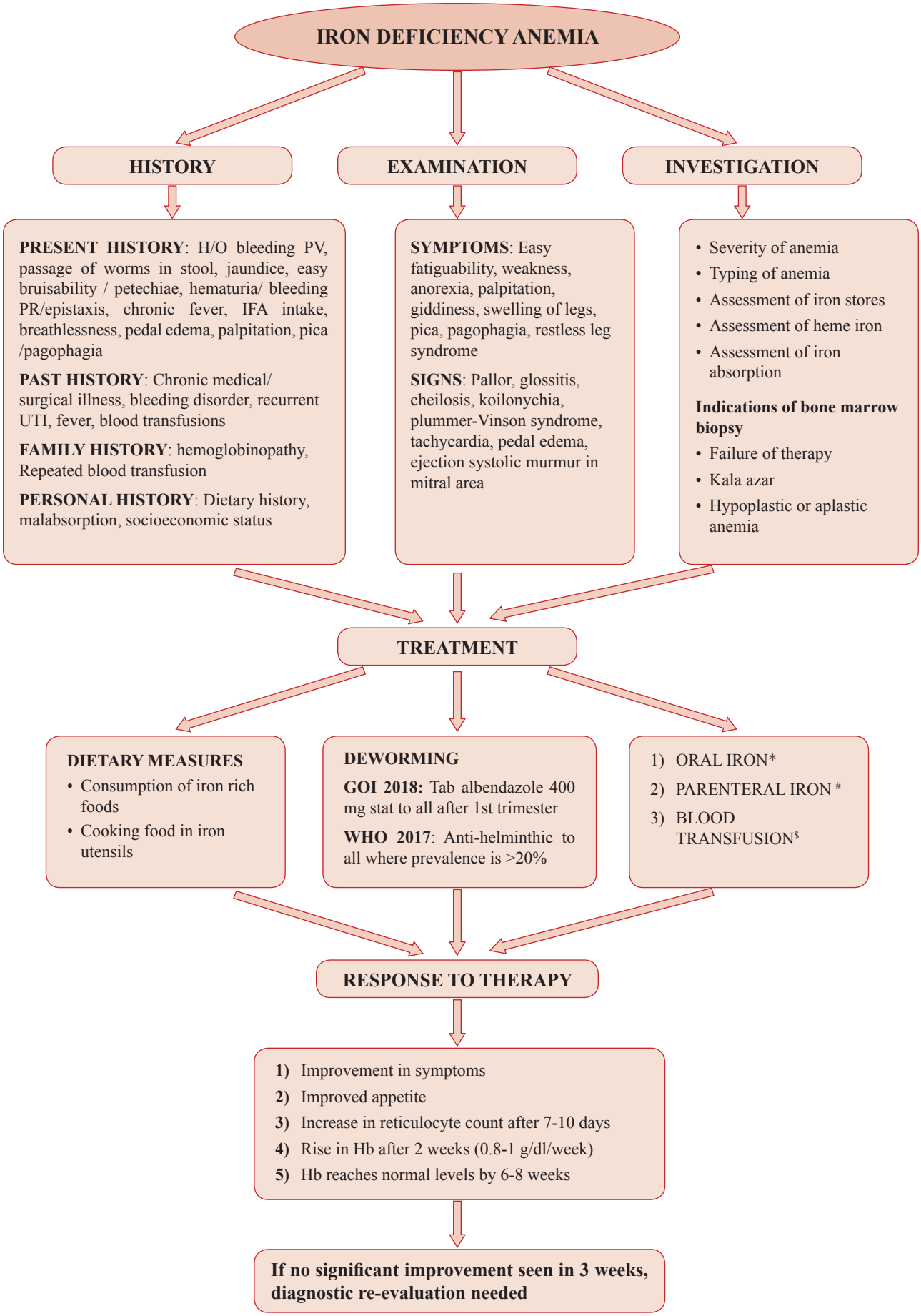
J B Sharma[1], Neha Varun[2]
[1]Professor, [2]Assisstant Professor, Department of Obstetrics and Gynaecology, All India Institute of Medical Sciences, New Delhi

Anemia is defined as the reduction in the total circulating red cell mass below normal limit. It is the most commonly seen medical disorder during pregnancy. Complete blood count testing is the recommended method for diagnosing anemia during pregnancy.

In the settings where complete blood count testing is not available, onsite hemoglobin testing with a haemoglobinometer is recommended over hemoglobin color scale method use, for diagnosing anemia in pregnancy.[1]

Management




IRON DEFICIENCY ANEMIA
HISTORY
EXAMINATION
INVESTIGATION
PRESENT HISTORY: H/O bleeding PV, passage of worms in stool, jaundice, easy bruisability / petechiae, hematuria/ bleeding PR/epistaxis, chronic fever, IFA intake, breathlessness, pedal edema, palpitation, pica /pagophagia
PAST HISTORY: Chronic medical/ surgical illness, bleeding disorder, recurrent UTI, fever, blood transfusions
FAMILY HISTORY: hemoglobinopathy, Repeated blood transfusion
PERSONAL HISTORY: Dietary history, malabsorption, socioeconomic status
SYMPTOMS: Easy fatiguability, weakness, anorexia, palpitation, giddiness, swelling of legs, pica, pagophagia, restless leg syndrome
SIGNS: Pallor, glossitis, cheilosis, koilonychia, plummer-Vinson syndrome, tachycardia, pedal edema, ejection systolic murmur in mitral area
• Severity of anemia
• Typing of anemia
• Assessment of iron stores
• Assessment of heme iron
• Assessment of iron absorption
Indications of bone marrow biopsy
• Failure of therapy
• Kala azar
• Hypoplastic or aplastic anemia
TREATMENT
DIETARY MEASURES
• Consumption of iron rich foods
• Cooking food in iron utensils
DEWORMING
GOI 2018: Tab albendazole 400 mg stat to all after 1st trimester
WHO 2017: Anti-helminthic to all where prevalence is >20%
1) ORAL IRON*
2) PARENTERAL IRON #
3) BLOOD TRANSFUSION$
RESPONSE TO THERAPY
1) Improvement in symptoms
2) Improved appetite
3) Increase in reticulocyte count after 7-10 days
4) Rise in Hb after 2 weeks (0.8-1 g/dl/week)
5) Hb reaches normal levels by 6-8 weeks
If no significant improvement seen in 3 weeks, diagnostic re-evaluation needed

***Oral Iron supplementation** (GOI 2108)

1) Prophylactic- elemental Fe 60mg OD+ folic acid 500 mcg OD till term-min 180 days
2) Therapeutic: Mild-mod anemia-2 IFA tab/day
3) Postpartum: elemental Fe 60mg OD+ folic acid 500 mcg OD for 6 months

 # PARENTRAL Fe THERAPY:

1) INDICATIONS: Intolerance to oral iron, no response to oral iron, advanced pregnancy, severe anemia, patients on EPO
2) CONTRAINDICATIONS: Iron overload conditions, hypersensitivity to IV Iron. 1st trimester of pregnancy, active infection, hepatic dysfunction (OT/PT > twice)

CALCULATION OF IRON DOSE:

REQUIRED IRON DOSE (mg): 2.4 □ (target Hb-actual Hb) □ pre-pregnancy weight (kg) + 1000 mg

COMMONLY USED PREPARATIONS:

- Before giving parenteral Fe (I/V or I/M), test dose is to be given with emergency drugs and equipment's to be ready for any anaphylactic reaction.

1) Iron sucrose complex: Each ml contains 20 mg of elemental iron. 200mg after dilution in 100 ml of 0.9% NaCl as a slow infusion over 15-20 minutes can be given on alternate days and maximum 3 doses /week.

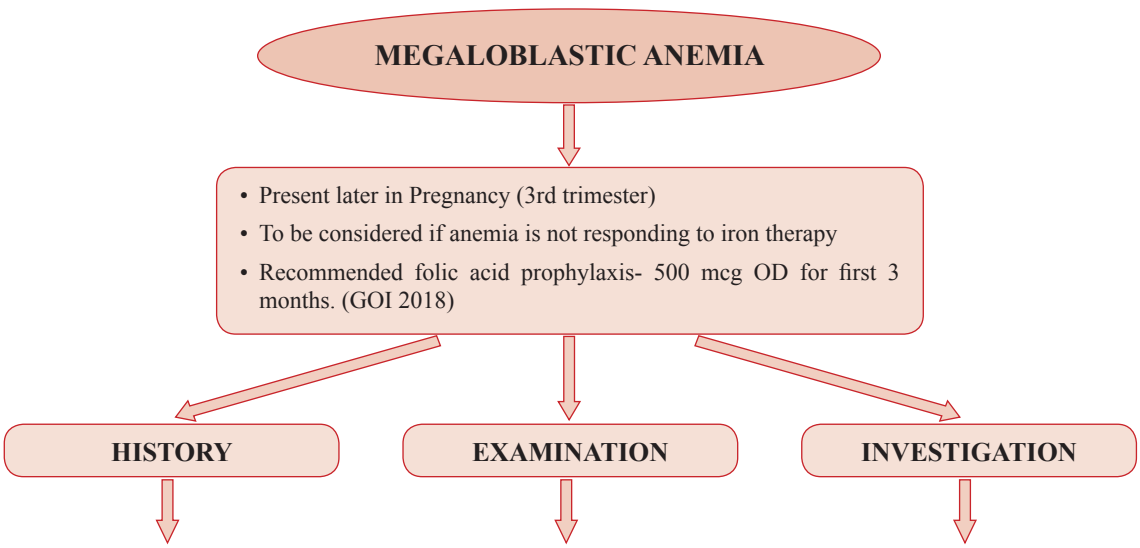
2) Ferric carboxy-maltose: Maximum single dose 1000 mg (20 ml) diluted in 250 ml of sterile 0.9% NaCl over 15-20 min not more than once a week and single injection not exceeding 20mg of iron/ Kg body weight.

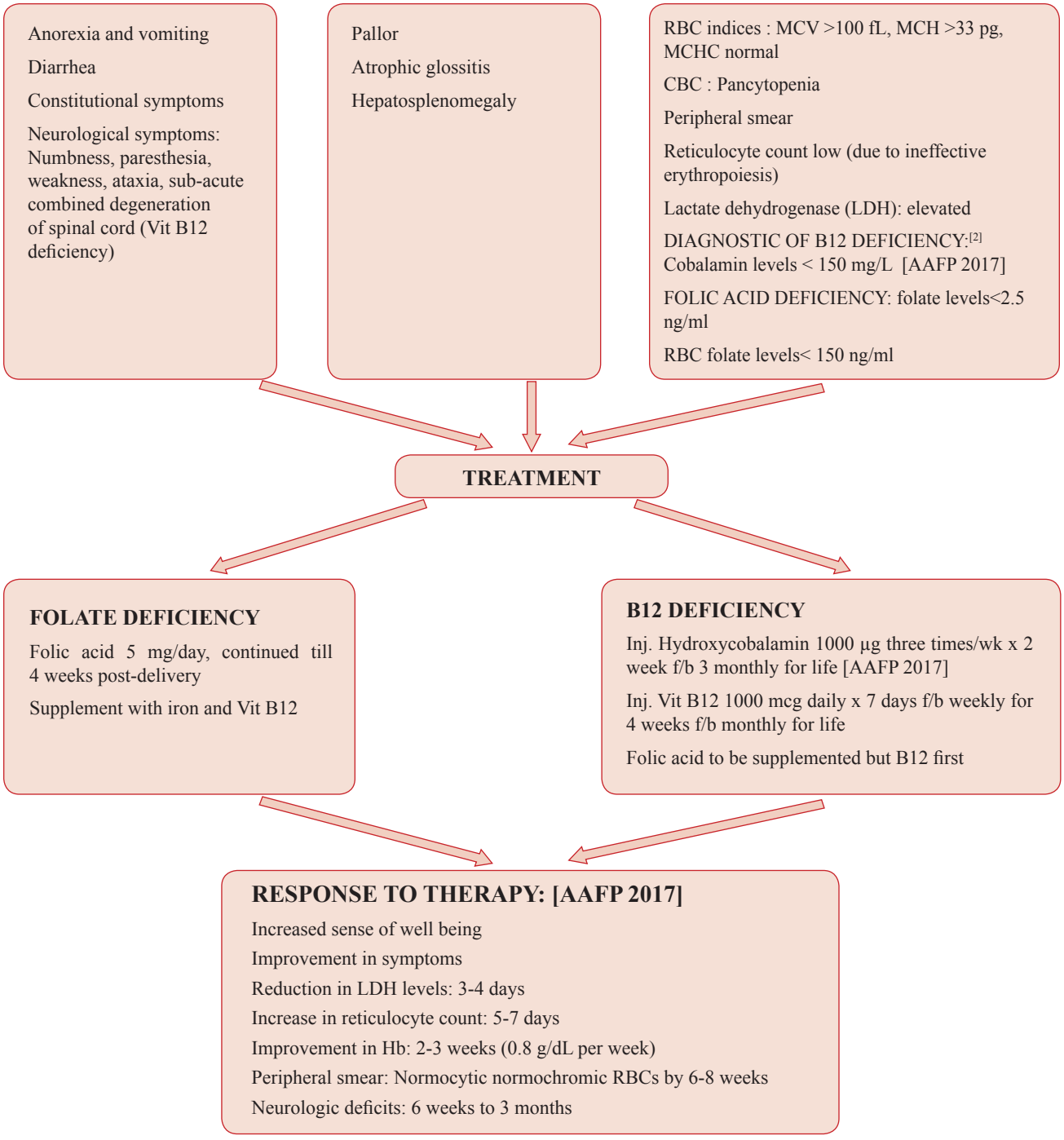
$ BLOOD TRANSFUSION (WHO OBSTETRIC MANUAL 2017)

1) Pregnancy < 36 weeks POG:
- Hb < 5 g/dL
- Hb 5-7 g/dL with presence of 1 or more of following conditions: Established or incipient cardiac failure or clinical evidence of hypoxia, pneumonia or any other serious bacterial infection, malaria, pre-existing heart disease, not causally related to the anemia

2) Pregnancy ≥36 weeks:
- Hb < 6 g/dL
- Hb 6-8 g/dL with presence of one or more of following conditions: Established or incipient cardiac failure or clinical evidence of hypoxia, pneumonia or any other serious bacterial infection, malaria, pre-existing heart disease, not causally related to the anemia

3) Other indications of blood transfusion in pregnancy:
- Acute hemorrhage with Hb < 6 g/dl
- Anemia not due to hematinic deficiency
- Intrapartum: if Hb is < 7g/dl in labor





Key Points

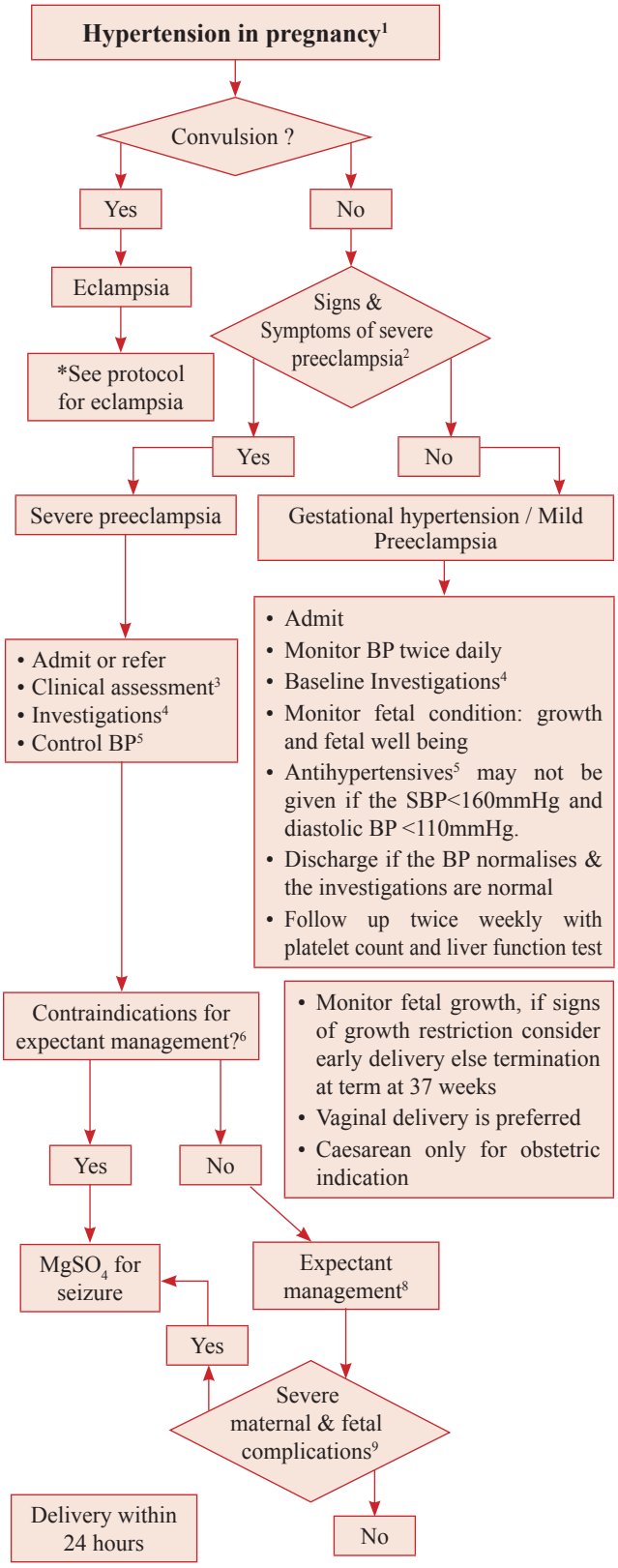
1) India is categorized as high prevalence area for anemia in pregnancy
2) Nutritional deficiency anemia during pregnancy continues to be a major health problem in India.
3) During pregnancy iron and folate prophylaxis is recommended
4) Complete work up and diagnosis of anemia during pregnancy should be made before initiating any therapy
5) First line therapy for iron deficiency anemia is oral iron
6) Parenteral iron therapy is safe and should be considered for moderate to severe anemia

References

1) WHO recommendation on the method for diagnosing anemia in pregnancy. 08 March 2018
2) CDC Issues Guidelines for Prevention, Detection and Treatment of Iron Deficiency. Am Fam Physician. 1998 Oct 15; 58(6): 1475-1477
3) Am Fam Physician. 2017 Sep 15;96(6):384-389

Screening & Management of Preeclampsia and Eclampsia

Aparna Sharma[1], Archana Kumari[2]
[1]Additional Professor, [2]Assisstant Professor, Department of Obstetrics and Gynaecology, AIIMS, New Delhi



[1]Definition:

- Pregnant women ≥ 20 weeks
- SBP ≥ 140 mmHg and / or DBP ≥ 90 mmHg (on two separate occasions taken 4 hours apart)
- SBP≥160mH or DBP ≥ 110
- Proteinuria 2+ or more (may be absent)

In absence of proteinuria, new onset hypertension with new onset of any of the followings:

- Headache (not relieved by regular analgesics or accounted by alternative diagnosis or visual symptoms)
- Thrombocytopenia <1lac
- Raised liver function tests (twice the normal)
- Renal insufficiency (S.cr.>1.1mg/dl or doubling in absence of other renal ds
- Pulmonary edema

[2]Symptoms of Severe Preeclampsia

SBP≥160mH or DBP ≥ 110

- Proteinuria 2+ or more (may be absent)

  OR
- Headache (not relieved by regular analgesics)
- Blurred vision
- Upper abdominal pain (Epigastric or right upper quadrant pain)
- Oliguria (Urine output <400ml in 24 hours)
- Pulmonary edema

[3]Clinical Assessment:

- Check PR, BP, RR, Temperature
- Secure IV line
- Catheterise for monitoring urine output
- Monitor sings & symptoms of impending eclampsia / pulmonary oedema
- Calculate gestational age
- Check for fetal well being

[4]Investigations:

- Complete haemogram with platelet count with peripheral smear for haemolysis Blood urea nitrogen & creatinine
- Liver function tests
- Urine albumin by dipstick & 24 hours urine protein
- Fundus examination
- Ultrasound for fetal growth and well being if available

[5]Control BP:
(Keep DBP< 110mmHg)

- If BP ≥ 160/110 mmHg
- Hydralazine 5 mg IV slowly over 5 minutes, repeat ever 20-40 mts (maximum 20 mg) OR
- IV labetalol 10-20 mg then 20-80 mg
  Every 10-30 mts (maximum 300 mg)
  OR
- tab nifedipine 10-20 mg, repeat in 20 mts if needed, then 10-20 mg every 2-6 hrly(maximum 180 mg/day)

Once BP is stabilised start oral antihypertensives:

- Tab. Labetelol 100 mg TDS
  (maximum 2400 mg) (First Line)
  OR
- Tab. Methyldopa 250 mg TDS (maximum 2grams)

[6]Contraindication to expectant management:

- Impending eclampsia
- Eclampsia
- HELLP Syndrome
- Pulmonary edema
- DIC
- Renal dysfunction
- Abruption
- Gestational age ≥ 37 weeks
- Fetal death
- Non-reassuring fetal status
- Previable gestation
- Persistent REDF in umbilical artery doppler

[7]$MgSO_4$ for seizure prophylaxis :

Regimen # 1

Loading dose:

- 4 gram of 20% MgSO4 IV over 5 minute|
  AND
- 10 gram of 50% MgSO4 deep IM with 1 ml of 20% lignocaine (5gram each buttock) Followed by
- 5 gram of 50% MgSO4 IM every 4 hour for 24 hour

Regimen # 2

- 4 gram of 20% MgSO4 IV over 5 minutes followed by 1 gram/hour IV solution of 20% $MgSO_4$ for 24 hours

Monitoring

- Respiratory rate (≥ 16breath/minute)
  Urine output (>30ml/hour)
- Knee jerk (present)

Contraindications of MgSO4-

- Mysathenia gravis, Hypocalcemia, moderate to severe renal failure, cardiac ischemia, heart block, myocarditis
- Give diazepam or phenytoin

[8]Maternal assessment:

- Monitor every 8 hours - Vital signs
- Input/Output
- Signs & Symptoms of impending eclampsia - Presence of contractions and/or rupture of membranes, Bleeding
- Laboratory testing biweekly (Complete blood count, platelets counts, ALT, AST, Creatinine)

Fetal assessment:

- Daily kick count & NST
- Twice weekly Biophysical profile
- Serial growth studies

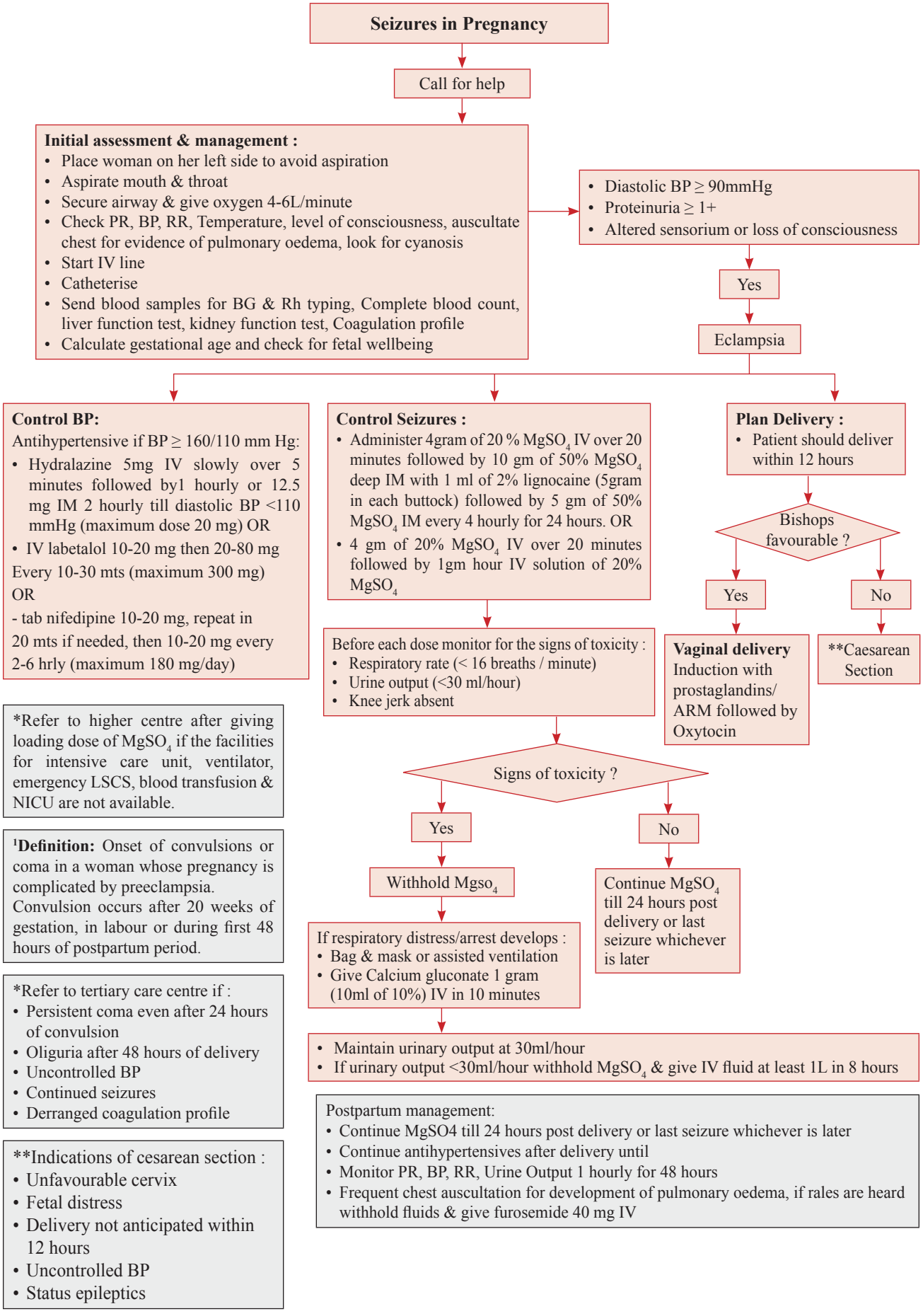
* Antenatal steroids should be given if the gestational age is between 24 weeks - 34 weeks for lung maturity

[9]Severe maternal & fetal complications:

- Uncontrolled BP
- Pulmonary edema
- Eclampsia
- Signs & symptoms of impending eclampsia
- Abruption
- Progressive labor
- Non-reassuring fetal heart
- Fetal death
- Severe IUGR

Timing of delivery

Delivery is recommended when gestational hypertension or preeclampsia with severe features is diagnosed at or beyond 34 0/7 weeks of gestation, after maternal stabilization or with labor or prelabor rupture of membranes.


Seizures in Pregnancy
Call for help
Initial assessment & management :
• Place woman on her left side to avoid aspiration
• Aspirate mouth & throat
• Secure airway & give oxygen 4-6L/minute
• Check PR, BP, RR, Temperature, level of consciousness, auscultate chest for evidence of pulmonary oedema, look for cyanosis
• Start IV line
• Catheterise
• Send blood samples for BG & Rh typing, Complete blood count, liver function test, kidney function test, Coagulation profile
• Calculate gestational age and check for fetal wellbeing
• Diastolic BP ≥ 90mmHg
• Proteinuria ≥ 1+
• Altered sensorium or loss of consciousness
Yes
Eclampsia
Control BP:
Antihypertensive if BP ≥ 160/110 mm Hg:
• Hydralazine 5mg IV slowly over 5 minutes followed by1 hourly or 12.5 mg IM 2 hourly till diastolic BP <110 mmHg (maximum dose 20 mg) OR
• IV labetalol 10-20 mg then 20-80 mg
Every 10-30 mts (maximum 300 mg)
OR
- tab nifedipine 10-20 mg, repeat in 20 mts if needed, then 10-20 mg every 2-6 hrly (maximum 180 mg/day)
Control Seizures :
• Administer 4gram of 20 % MgSO4 IV over 20 minutes followed by 10 gm of 50% MgSO4 deep IM with 1 ml of 2% lignocaine (5gram in each buttock) followed by 5 gm of 50% MgSO4 IM every 4 hourly for 24 hours. OR
• 4 gm of 20% MgSO4 IV over 20 minutes followed by 1gm hour IV solution of 20% MgSO4
Plan Delivery :
• Patient should deliver within 12 hours
Bishops favourable ?
Yes
No
Vaginal delivery
Induction with prostaglandins/ ARM followed by Oxytocin
**Caesarean Section
Before each dose monitor for the signs of toxicity :
• Respiratory rate (< 16 breaths / minute)
• Urine output (<30 ml/hour)
• Knee jerk absent
Signs of toxicity ?
Yes
No
Withhold Mgso4
Continue MgSO4 till 24 hours post delivery or last seizure whichever is later
If respiratory distress/arrest develops :
• Bag & mask or assisted ventilation
• Give Calcium gluconate 1 gram (10ml of 10%) IV in 10 minutes
• Maintain urinary output at 30ml/hour
• If urinary output <30ml/hour withhold MgSO4 & give IV fluid at least 1L in 8 hours
*Refer to higher centre after giving loading dose of MgSO4 if the facilities for intensive care unit, ventilator, emergency LSCS, blood transfusion & NICU are not available.
[1]Definition: Onset of convulsions or coma in a woman whose pregnancy is complicated by preeclampsia. Convulsion occurs after 20 weeks of gestation, in labour or during first 48 hours of postpartum period.
*Refer to tertiary care centre if :
• Persistent coma even after 24 hours of convulsion
• Oliguria after 48 hours of delivery
• Uncontrolled BP
• Continued seizures
• Derranged coagulation profile
**Indications of cesarean section :
• Unfavourable cervix
• Fetal distress
• Delivery not anticipated within 12 hours
• Uncontrolled BP
• Status epileptics
Postpartum management:
• Continue MgSO4 till 24 hours post delivery or last seizure whichever is later
• Continue antihypertensives after delivery until
• Monitor PR, BP, RR, Urine Output 1 hourly for 48 hours
• Frequent chest auscultation for development of pulmonary oedema, if rales are heard withhold fluids & give furosemide 40 mg IV

FIRST TRIMESTER SCREENING FOR PREDICTION OF PRETERM PREECLAMPSIA

Maternal characteristics, medical and obstetric history[1]

Detection Rate (DR) (44.8%)

Measurement of MAP[2]

DR 38% alone

Measurement of PLGF[3]

DR 55% alone

Measurement of UTPI[4]

DR 48.4% alone

Combined risk assessment with maternal risk factors, MAP, PLGF, UTPI at 11-13+6 wks of gestation **(DR 82%)**

Screened low risk <1 in 100

Routine prenatal care

Screened high risk >1 in 100

Aspirin 150 mg at night from 11-14+6 wks until 36 wks, Calcium supplementation (1.5-2g/d) in women with low CA intake

1. Maternal risk factors

Maternal age, Maternal weight (Kg), Maternal height (cm), Maternal ethnicity: white, Afro-caribbean, South Asian, East Asian,

Past obstetric history: nulliparous, parous with prior PE, Parous with interpregnancy interval in years between birth of the last child

Gestational age at delivery(weeks) and birth weight of previous pregnancy beyond 24 wks

Family history of PE, Method of conception: spontaneous, ovulation induction, IVF, History of chronic hypertension, History of diabetes : type 1, type 2, insulin intake, History of SLE or APLA

2. Measurement of MAP (mean arterial pressure)

Sitting position with arms at heart level, using appropriate sized cuff (after 5mt rest)

Mid arm circumference: Small<22cm, normal 22-32cm, large 33-42cm

Measure BP in both arms simultaneously

2 sets of BP measurement at 1 mt interval

3. PLGF (placental growth factor)

BBest biochemical marker is PLGF.PAPP is used if PLGF and UTPI is not available. Significantly lower concentrations in pts likely to develop preeclampsia

PAPP-A as a single marker is not an accurate predictive test for preeclampsia (DR 16%)

4. UTPI (Uterine artery Doppler pulsatility index)

Abnormal UTPI is defined as >90th percentile Persistent high impedance to flow in uterine arteries is predictive of preeclampsia

CONTINGENT SCREENING IN LIMITED RESOURCE SETTING

In limited resource settings, routine screening for preterm preeclampsia should be done by maternal factors and MAP in all pregnancies and preserving PLGF and UTPI for the subgroup of population based on risk assessment by MAP and maternal risks as shown in algorithm below

Total population

First stage screening with MAP and risk factors

Screen positive

Screen negative

Second stage screening with PLGF and UTPI

Screen negative

Screen positive

Detection rate 70%

Suggested Reading

- ACOG guidelines for Preeclampsia and eclampsia 2019
- FIGO guidelines for Screening of Preeclampsia 2019

HIV Infection in Pregnancy

Rinchen Zangmo[1], Rohini Sehgal[2]
[1]Assistant Professor, [2]Scientist, Department of Obstetrics and Gynaecology AIIMS, New Delhi

Provider-initiated Opt-out testing recommended- as part of battery of routine ANC tests;
To be re-counseled at next visit, if testing refused by patient.

HIV positive ⇄ Confirmatory tests

HIV negative-
most likely not infected with HIV, though recent infection may be missed
Re-test at 36 wks in generalised epidemics

INVESTIGATIONS:
CD4 count
CBC, LFT/KFT, urinalysis
Serology testing for hepatitis A, B, and C viruses
Lipid profile (Optional if PI based regimen)
Screening for curable STDs (SYPHILIS, GONORRHOEA, CHLAMYDIA)
Screening for cervical cancer precursor as per guidelines

Start ART:
To reduce MTCT
Counsel about partner testing

Target population	Drug regimen	Remark
Pregnant and breasting women with HIV (ART Naïve/ Not already receiving ART)	TDF+3TC+EFV	TDF(300MG)+3TC(300 MG)+EFV (600 MG): 2 hours after low fat diet
Pregnant and breasting women with HIV (Already receiving ART)	Same ART regimen to be continued	
ART regimen for pregnant women with having prior exposure to NNRTI for PPTCT	TDF+3TC and LPV/r	TDF (300 MG)+3TC(300 MG)-> 1 OD LPV (200 MG)/r(50 MG)-2 tab BD

Intra Partum Management in Women with HIV Infection

Status	Intra-partum	Post -partum
Presenting in active labour, No prior ART	Initiate TDF (300 mg) + 3TC (300 mg) + EFV (600 mg)	Continue TDF (300 mg) + 3TC (300mg) + EFV (600 g)

NACO recommends normal vaginal delivery unless the woman has obstetric indications (like foetal distress, obstructed labour) for a Caesarean section.

In places where facilities for viral load monitoring are available, intrapartum management should be done as per viral load (British HIV Association Guidelines 2018):

- Plasma viral load <50 HIV RNA copies/mL at 36 weeks, with no obstetric contraindications → planned vaginal delivery.
- Vaginal birth after CS (VBAC) - offered to women with a viral load <50 HIV RNA copies/ml.
- Plasma viral load 50–399 HIV RNA copies/mL at 36 weeks. → pre-labour CS (PLCS) should be considered, taking into account the actual viral load, the trajectory of the viral load, length of time on treatment, adherence issues, obstetric factors and the woman's views.
- Viral load ≥400 HIV RNA copies/mL at 36 weeks. → PLCS recommended at 38-39 weeks.
- Viral loads more than 1,000 copies/mL at or near delivery independent of antepartum antiretroviral therapy, or those with unknown levels → PLCS.

Planned vaginal delivery:

Minimize vaginal examinations during labour

Avoid prolonged labour; consider oxytocin to shorten labour

Avoid artificial rupture of membranes

Use non-invasive fetal monitoring

Early cord clamping

Precautions to be taken during Caesarean section:

ARV prophylaxis 4 hours prior (elective)

Avoid rupturing membranes until the head is delivered through the surgical incision

Early cord clamping

Use of round blunt tip needles

Use forceps to receive and hold the needle

Peripartum antibiotics

Care of Newborn:

Avoid invasive nasogastric suctioning.

Wash away blood from newborn.

Start ARV prophylaxis within 1 hour.

Early infant testing-

DNA PCR at 6wks and 6 months age (Dried Blood Sample) → 95% sensitive & specific.

If positive- confirm with Whole Blood Sample PCR → start ART if positive.

Final diagnosis → at 18 months.

Start Cotrimoxazole prophylaxis for all neonates from 6 weeks to 18 months.

All babies detected positive <2years of age are given Paediatric ART irrespective of CD4 count.

ARV Prophylaxis for Infant:

Daily infant NVP prophylaxis can be started even if more than 72 hours have passed since birth and should continue.

The duration of NVP given to infant is a minimum of 6 weeks, regardless of whether the infant is exclusively breast-fed or exclusive replacement fed.

Infants of women with prior exposure to NVP should get syrup Zidovudine (AZT) in place of syrup Nevirapine.

Keypoints

- Provider-initiated Opt-out testing recommended as a part of battery of routine ANC tests.
- Start ART with confirmed positive test report to reduce mother to child transmission.
- Monitor Plasma HIV RNA levels at initial prenatal visit, 2–4 weeks after initiating (or changing) cART drug regimens; monthly until RNA levels are undetectable; and then at least every 3 months during pregnancy
- Check CD4 count- at initial visit and every 3-6 months.
- In women conceiving on cART there should be a minimum of one CD4 cell count at baseline and one at delivery.
- In women who commence cART in pregnancy, a CD4 cell count should be performed as per routine initiation of cART with the addition of a CD4 count at delivery even if starting at CD4 >350 cells/mm3.
- In women who commence cART in pregnancy, an HIV viral load should be performed 2–4 weeks after commencing cART, at least once every trimester, at 36 weeks and at delivery.
- Vaginal delivery can be done with plasma viral load <50 HIV RNA copies/mL at 36 weeks, with no obstetric contraindications
- Pre-labour CS (PLCS) should be considered Plasma viral load 50–399 HIV RNA copies/mL at 36 weeks
- PLCS recommended at 38-39 weeks with viral load ≥400 HIV RNA copies/mL at 36 weeks and in those with unknown levels

Further Reading

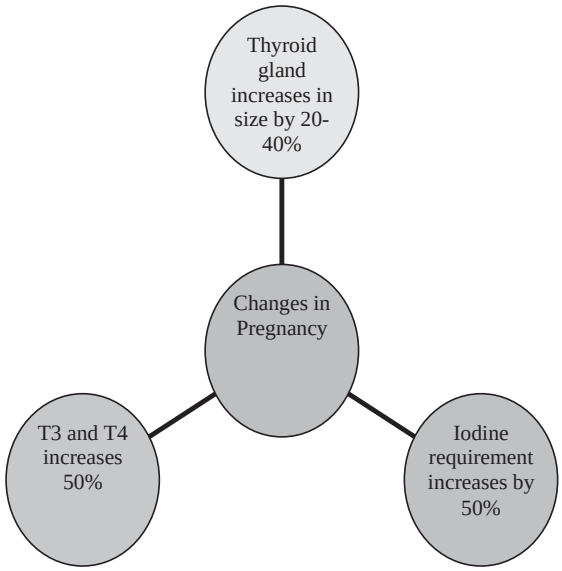
1. WHO update 2017: What is new in treatment monitoring: Viral load and CD4 testing
2. BHIVA guidelines on the management of HIV in pregnancy and postpartum 2018
3. Clinical Obstetrics and Gynaecology 2018: HIV infection: Antepartum Treatment and Management
4. NACO 2018: National technical guidelines on ART.

Thyroid Disorders in Pregnancy

Anubhuti Rana[1], Vatsla Dadhwal[2]
[1]Assistant Professor, [2]Professor, All India Institute of Medical Sciences, New Delhi.

Physiological changes in thyroid gland and thyroid function tests

Pregnancy has a profound impact on thyroid gland and its function



RDA of Iodine:

Pregnancy: 250 mcg/d
Breastfeeding: 290 mcg/d

Also in pregnancy:

↑ Renal Iodine excretion

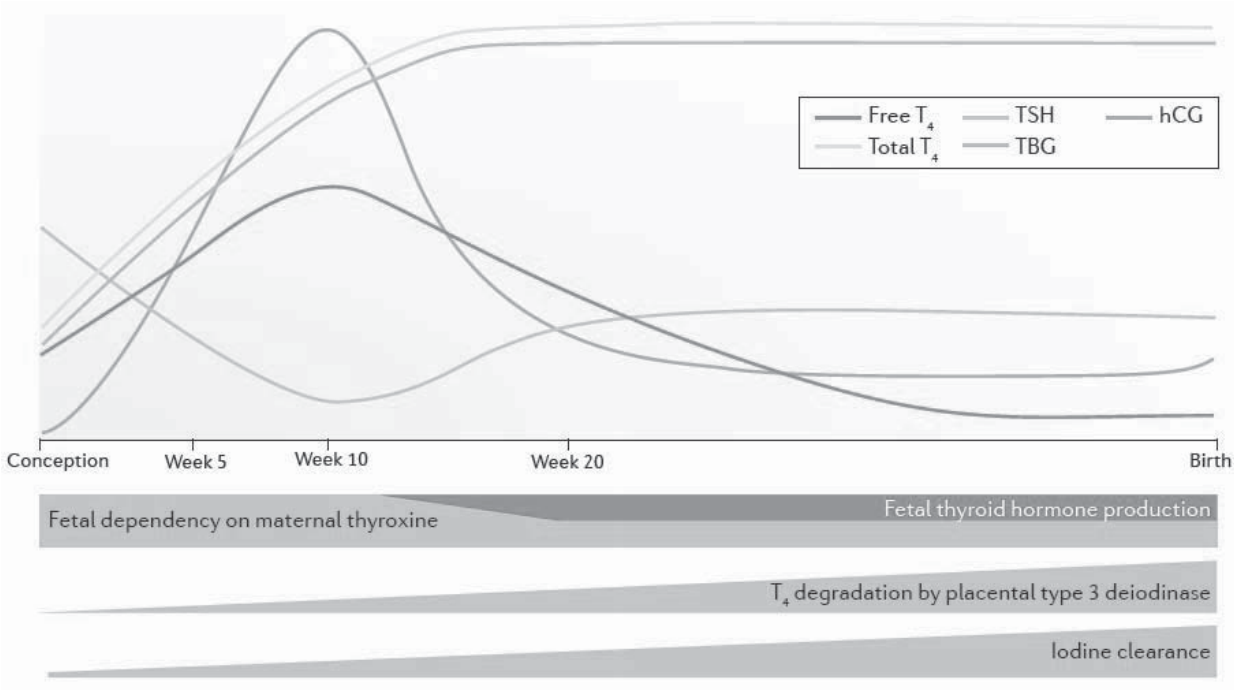
↑ TBG

Maternal T4 is transferred to the fetus throughout the entire pregnancy and is important for normal fetal brain development especially before 12 weeks of gestation

Thyroid function tests:

- Marked and early increase (7 weeks) in TBG and hCG
- Increase TBG→ Increase serum TT4 levels (peak at 16 weeks)
- Increase hCG→ increase FT4 levels→ this transient increase causes negative feedback on TSH (level decrease)
- Except for transient increased FT4 levels between 7-12 weeks, levels essentially unchanged
- Serum TSH→ after the first trimester, TSH levels return to baseline values and progressively increase in the third trimester related to placental growth and production of placental deiodinase

Changes in thyroid physiology during pregnancy



Serum TSH Reference value

When possible population based, trimester specific TSH reference ranges should be defined.[1]

If not available : >4.0mU/l may be used

Screening for thyroid disease in pregnancy

Universal screening for thyroid disease in pregnancy is not recommended because identification and treatment of maternal subclinical hypothyroidism has not been shown to result in improved neurocognitive function in offspring.

Indicated testing of thyroid function should be performed in women with a personal history of thyroid disease or symptoms of thyroid disease or who are at increased risk of overt hypothyroidism.[2]

Screening for hypothyroidism is recommended by Ministry of Health and Family Welfare, India, in high risk pregnant women.

Screening for thyroid disease in pregnancy

All pregnant women should be verbally screened for risk factors at prenatal visits[1]

Identify at risk patients

Risk factors present
-Residing in endemic belt **(India)**
-H/o thyroid dysfunction
-Known thyroid antibody positivity or presence of a goiter
-H/o head or neck radiation or prior thyroid surgery
- Type 1 diabetes or other autoimmune disorders
- H/o pregnancy loss, preterm delivery, or infertility
-Family h/o autoimmune thyroid disease or thyroid dysfunction

No risk factors present

Insufficient evidence for/against universal testing

Serum TSH done

Hypothyroidism in pregnancy

Prevalence:[3]
Overall prevalence in pregnancy: 2-3%
Subclinical hypothyroidism: 2-2.5%
Overt hypothyroidism: 0.3-0.5%

Most common cause of hypothyroidism in pregnant females is:
- Iodine deficiency goiter
- Hashimoto's thyroiditis (in iodine nutrition adequate areas)

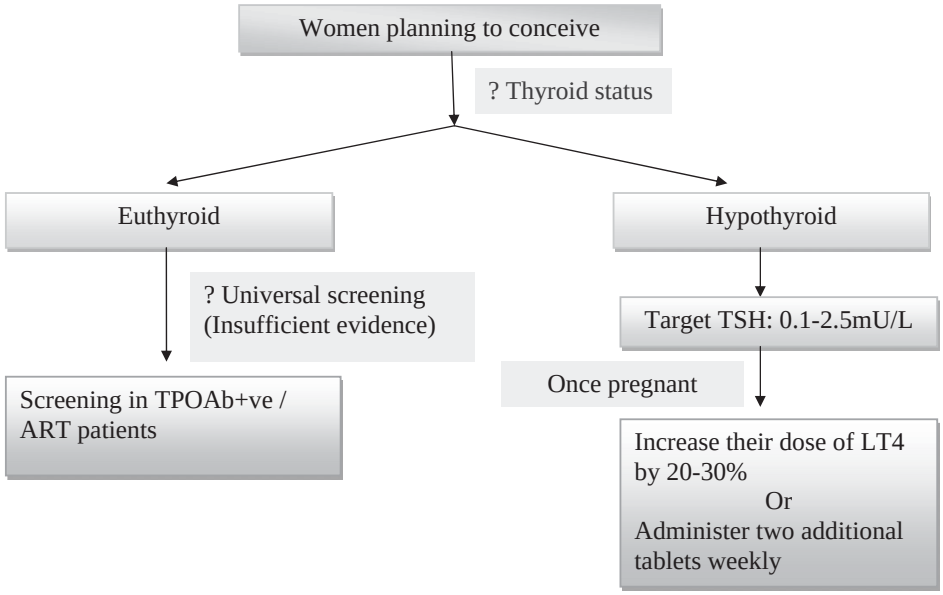
Classification

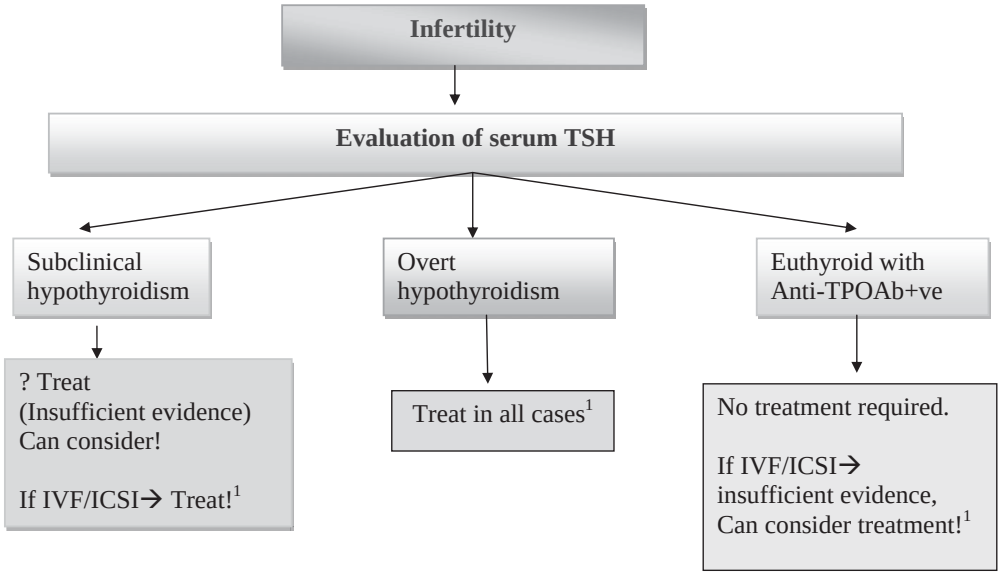
Subclinical Hypothyroidism	Overt Hypothyroidism	Isolated Maternal hypothyroxinemia
• Asymptomatic • Elevated TSH • Normal FT4	• Symptomatic • TSH > trimester specific values with low T4 or TSH > 10 irrespective of T4	• Normal TSH • Decreased FT4 • Does not require treatment in pregnancy

Management of Hypothyroidism in pre-conception period and pregnancy

Pre-conception and Peri-conception Care

In hypothyroid women planning pregnancy→ Ideal TSH: 0.1-2.5mU/L





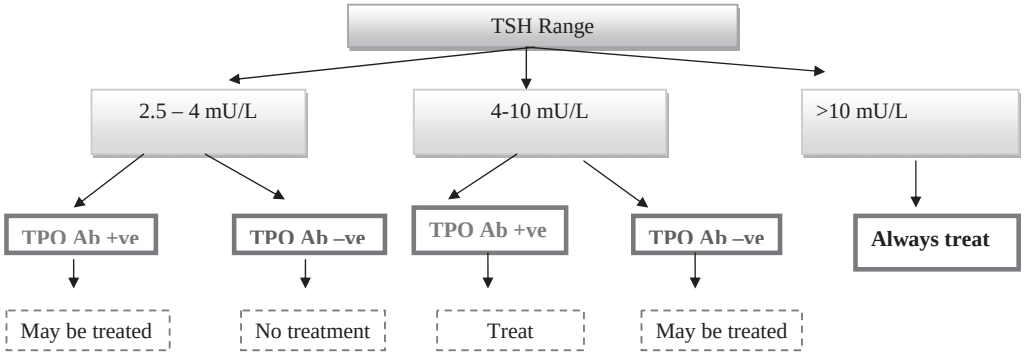
Rationale for treatment in pregnancy: Why treat?

Treat to prevent potential adverse effects on mother and fetus

Overt Hypothyroidism		Subclinical hypothyroidism	
Maternal effects	Fetal effects	Maternal effects[4]	Fetal effects
• Early pregnancy loss • Recurrent pregnancy loss • Increased risk of gestational hypertension	• Lower intelligence quotient • Low birth weight • Preterm birth	-Placental abruption -PPROM -Pregnancy loss	Not significant

Overt hypothyroidism	Subclinical hypothyroidism To treat or not?
Always treat	- Existing evidence → Treatment did not result in significantly better cognitive outcomes in children.[5] - However, additional randomized trials are needed to determine whether earlier initiation of treatment (prior to 13 weeks) improves outcomes.[1]

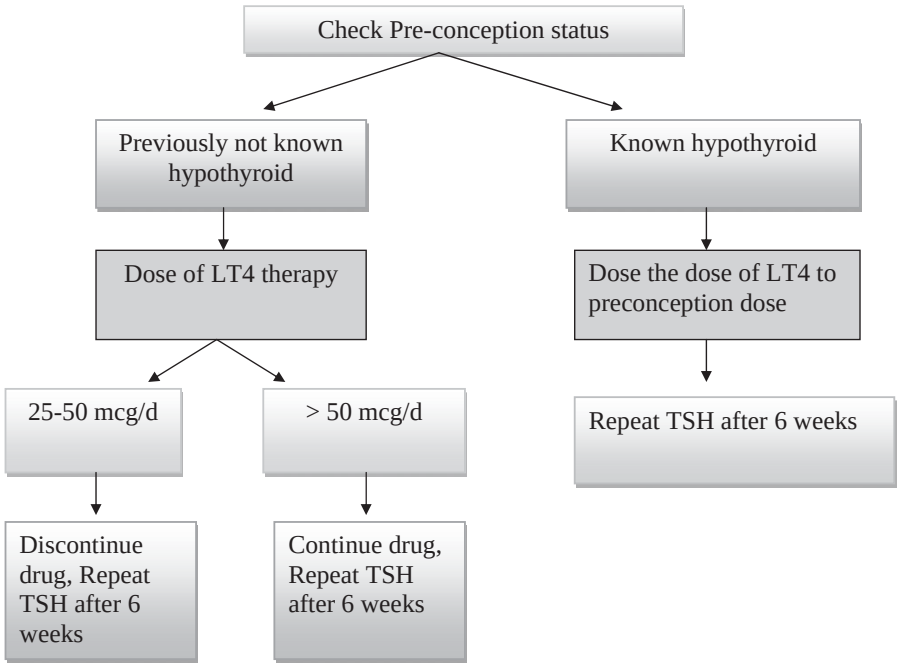
Treatment and Monitoring of hypothyroidism in pregnancy



How to start treatment and monitor in pregnancy?

- T4 replacement therapy, beginning with levothyroxine in dosages of 1–2 micrograms/kg daily
- Target TSH: -0.1-2.5 mU/L
- Measure TSH four weekly during the first half of pregnancy
- Can be monitored less often, at least once each trimester in latter half of pregnancy, as long as the dose is unchanged

Management of hypothyroidism in post-partum period



Screening for hypothyroidism in neonate

- Screening should be done for every newborn by blood spot analysis typically 2–5 days after birth (ideally at 48 to 72 h of age).[1]
- Primary TSH assay is recommended for newborn screening.
- Preterm and LBW/VLBW infants should undergo routine screening for at 48–72 h postnatal age.
- Sick neonates should be screened at least by 7 days of age

Post-partum thyroiditis

Definition:

- Acute inflammatory disease
- Thyroid dysfunction within 12 months of delivery that can include clinical evidence of hyperthyroidism, hypothyroidism, or both in women who are euthyroid prior to pregnancy

High risk patients:

- TPOAb positive
- Other auto immune disorders
- H/o Graves disease
- H/o post partum thyroiditis

Making the diagnosis

- No prior history of thyroid disease
- No stigmata of Graves disease (goiter, orbitopathy)
- TRAb absent
- TT4>TT3

Disease course:

- 1st phase is destruction-induced thyrotoxicosis and episodes of thyrotoxicosis resolve spontaneously after a few months
- 2nd phase is overt hypothyroidism that occurs between 4 months and 8 months postpartum.
-10-20% of cases results in permanent disease.

Treatment

Whom to treat:
Symptomatic; Attempting for pregnancy again; Breast feeding

- During thyrotoxic phase: Treat with beta blockers
- Anti-thyroid drugs not recommended
- During hypothyroid phase: Treat with levothyroxine

Follow up

Measure TSH 4-8 weekly

Continue levothyroxine up to 12 months post-partum

After 12 months, start tapering using serum TSH value for titration

Annually follow the patient with TSH value to prevent permanent disease

Hyperthyroidism in pregnancy

Prevalence in pregnancy:[6]

Subclinical hyperthyroidism: 1.7%

Overt hyperthyroidism: 0.8%

Diagnosis:
- Decreased TSH level
- Increased free T4 level

Causes:

Gestational transient thyrotoxicosis
Grave's disease
Factitious intake of thyroid hormone/overtreatment
Toxic multinodular goiter
Toxic adenoma
Subacute thyroiditis
TSH-secreting pituitary adenoma
Struma ovarii

Making a diagnosis

Gestational transient thyrotoxicosis

- No h/o thyroid disease
- No stigmata of Grave's disease
- Self-limited mild disorder
- Symptoms of emesis
- No antibody present
- Associated with hyperemesis, multiple or molar pregnancy
- Treatment: supportive measures only, anti-thyroid drugs not recommended

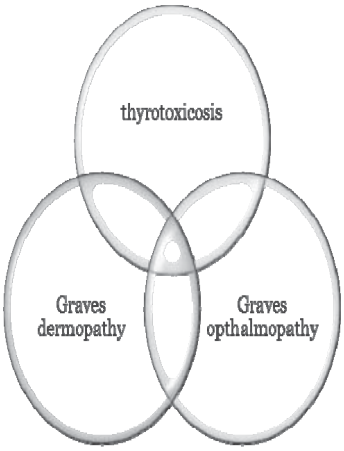
Grave's disease

- TSH receptor antibody present
- Stigmata of Grave's disease present

Autonomous thyroid nodules

- No antibody present
- High risk of fetal hypothyroidism

Grave's disease



Antibodies present are:

- Thyroid –stimulating autoantibodies/immunoglobulins (TSIs) (more common)→stimulate fetal thyroid
- TSH-binding inhibitory immunoglobulins → inhibit fetal thyroid

Complications in pregnancy

Maternal

- Pre-eclampsia
- Congestive heart failure
- Thyroid storm
- Pregnancy loss

Fetal

- IUGR
- Still birth
- Prematurity
- Non Immune hydrops
- Antibodies can cross the placenta→
  - Goitrous thyrotoxicosis
  - Goitrous hypothyroidism
  - Non-Goitrous hypothyroidism

Treatment options

Anti-Thyroid drugs (ATD)

Thionamide group:

Methimazole (MMI)
Carbimazole(CM)
Propylthiouracil (PTU)

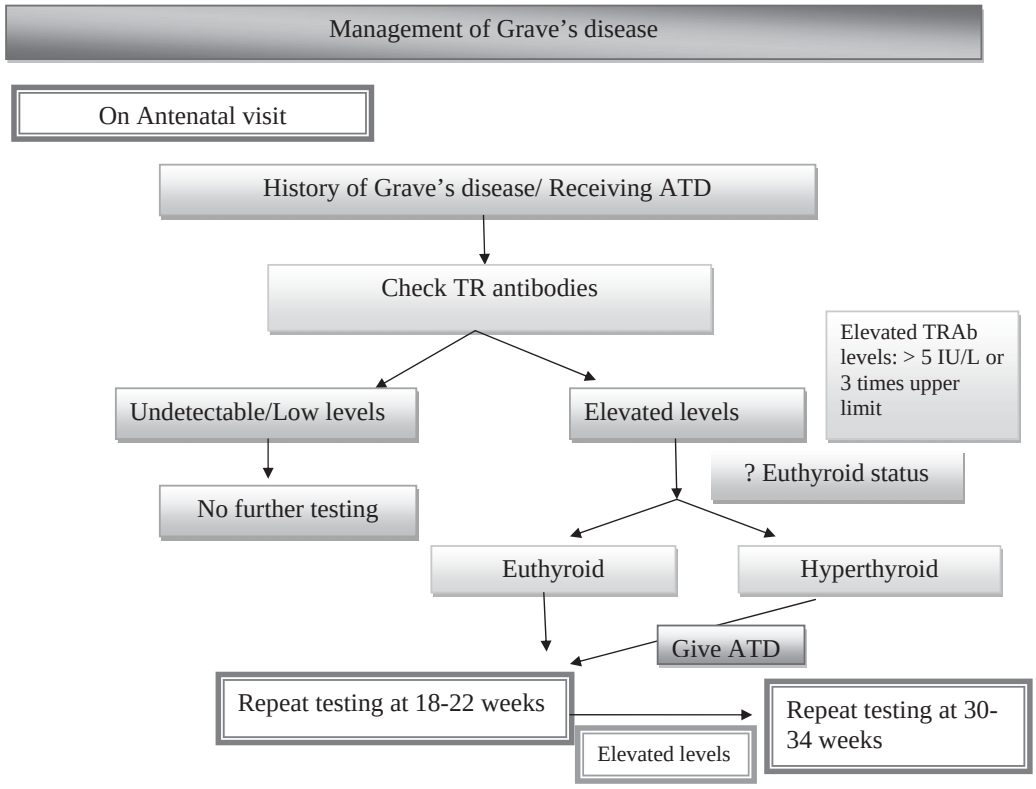
(Category D)

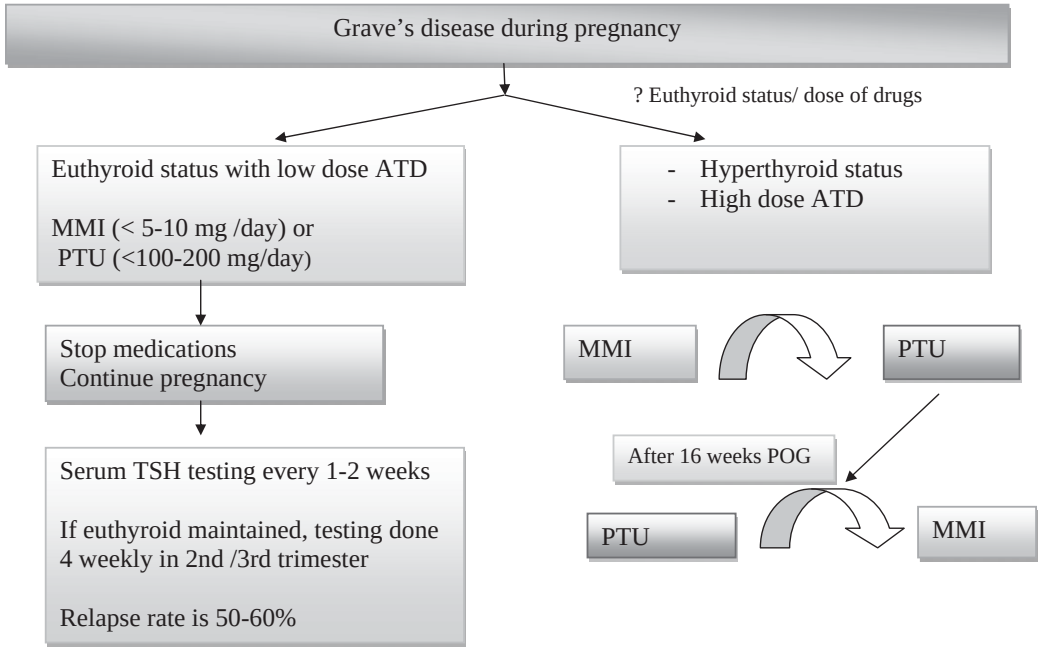
Surgery (Thyroidectomy)

Indications:
Allergies /contraindications/ Non-compliant toATD
Euthyroid status not after adequate dose of ATD

Optimal time: Second Trimester

Continue ATD after surgery as disappearance of antibodies is gradual.


Management of Grave's disease
On Antenatal visit
History of Grave's disease/ Receiving ATD
Check TR antibodies
Elevated TRAb levels: > 5 IU/L or 3 times upper limit
Undetectable/Low levels
Elevated levels
No further testing
? Euthyroid status
Euthyroid
Hyperthyroid
Give ATD
Repeat testing at 18-22 weeks
Elevated levels
Repeat testing at 30-34 weeks


Grave's disease during pregnancy
? Euthyroid status/ dose of drugs
Euthyroid status with low dose ATD
MMI (< 5-10 mg /day) or
PTU (<100-200 mg/day)
- Hyperthyroid status
- High dose ATD
Stop medications
Continue pregnancy
MMI
PTU
After 16 weeks POG
Serum TSH testing every 1-2 weeks
If euthyroid maintained, testing done 4 weekly in 2nd /3rd trimester
Relapse rate is 50-60%
PTU
MMI

Anti Thyroid Drugs (ATD) used in hyperthyroidism:

-Start at smallest lowest dose possible
5 mg MMI=100 mg of PTU (Maintain a ratio of 1:20 when shifting from MMI to PTU)
-Doses:
MMI=5-30 mg daily (OD dosing)
CM=10-40 mg daily
PTU=100-600 mg dailyPTU divided into 2-3 dosing

-Teratogenic effects:

MMI related: (3-4%)
Aplasia cutis
Choanal /esophageal atresia

PTU related: (2-3%)
Face and neck cysts
Urinary tract abnormalities

Targets:
Serum FT4/TT4 should be at/just above the reference range.

Monitoring:
FT4 (preferably) and TSH monitored 4 weekly

Anti thyroid drugs in post partum

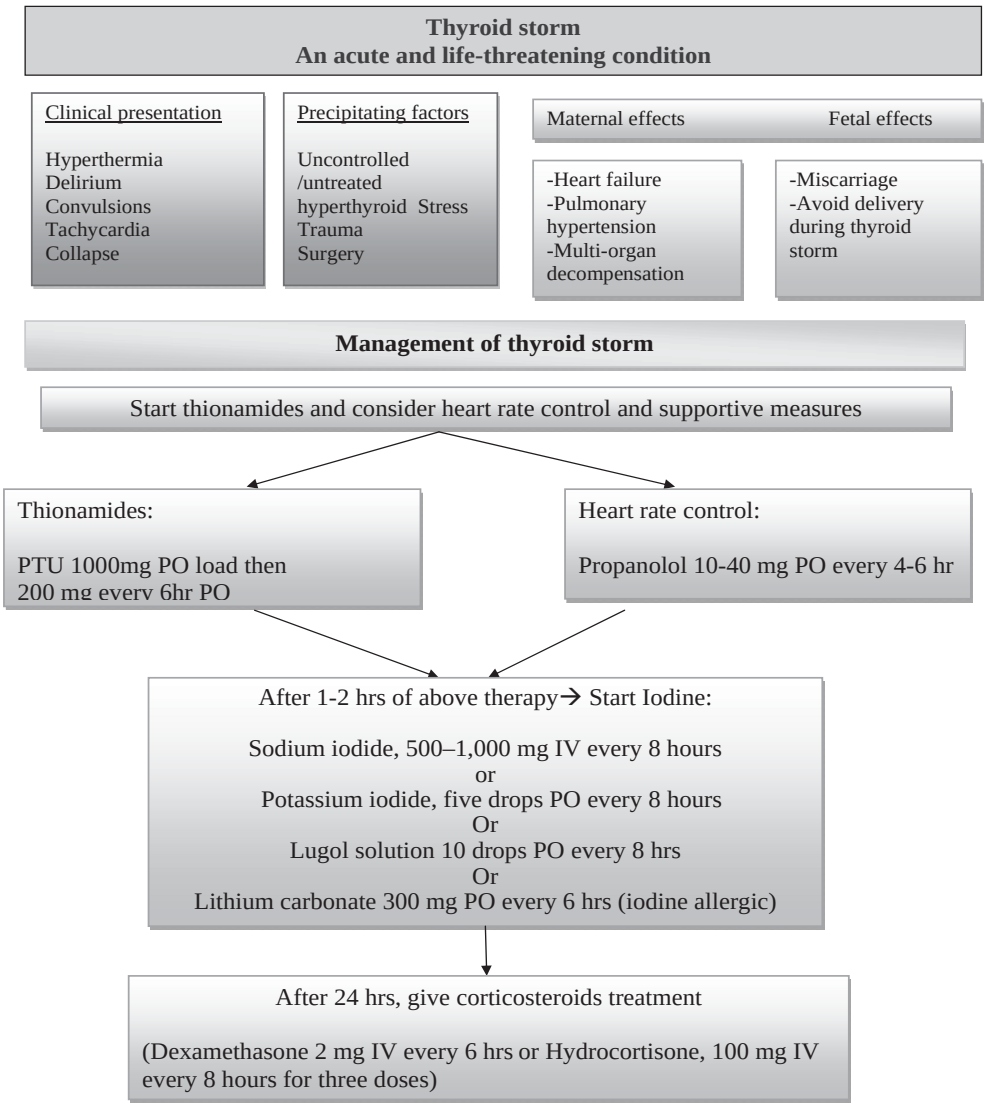
Some amount secreted in breast milk

Use lowest dose of MMI/CM or PTU

Routine assessment of thyroid function in breastfeeding infant not recommended

Screening of neonate in mother with hyperthyroidism

- Routine evaluation of fetal thyroid function, including fetal thyroid ultrasonographic assessment, umbilical cord blood sampling, or both is not recommended.[2]
- Umbilical cord blood sampling should be done only when the diagnosis of fetal thyroid disease cannot be reasonably excluded based on clinical and ultrasonographic data.[7]



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1. Alexander EK et al. Guidelines of the American Thyroid Association for the Diagnosis and Management of Thyroid Disease During Pregnancy and the Postpartum. Thyroid. 2017 Mar; 27(3): 315-389.
2. American College of Obstetricians and Gynecologists. Practice Bulletin No.148: Thyroid disease in pregnancy. Obstet Gynecol. 2015 Apr; 125(4):996-1005.
3. National Guidelines for Screening of Hypothyroidism during Pregnancy. Maternal Health Division Ministry of Health & Family Welfare, Government of India. December 2014.
4. AU Maraka et al. Subclinical Hypothyroidism in Pregnancy: A Systematic Review and Meta-Analysis. Thyroid. 2016; 26(4): 580.
5. Casey BM, Thom EA, Peaceman AM, Varner MW, Sorokin Y, Hirtz DG et al. Treatment of Subclinical Hypothyroidism or Hypothyroxinemia in Pregnancy. N Engl J Med. 2017 Mar 2; 376(9): 815-825.
6. Ecker JL, Musci TJ. Thyroid function and disease in pregnancy. Curr Probl Obstet Gynecol Fertil 2000;23:109–22.
7. De Groot L, Abalovich M, Alexander EK, Amino N, Barbour L, Cobin RH, et al. Management of thyroid dysfunction during pregnancy and postpartum: an Endocrine Society clinical practice guideline. J Clin Endocrinol Metab 2012; 97: 2543–65.

Antiphospholipid Antibody Syndrome Pregnancy

Akanksha Tiwari[1], Jyoti Meena[2]
[1]Senior Resident, [2]Associate Professor, All India Institute of Medical Sciences

An autoimmune thrombophilic condition marked by the presence of antibodies in blood - attack phospholipid-binding proteins, rather than phospholipid itself

Incidence: 5 new cases/100,000 persons per year
Prevalence: 40-50cases/100,000 persons per year
Prevalence of aPL in healthy indiviuals
- aCL-10%
- LAC-<1%
In patients with SLE:20-30% have aPL

Revised Sapporo Criteria for APS diagnosis
(at least one clinical criteria should accompany to laboratory criteria)

Clinical Criteria
1. Thrombosis (arterial, venous, or small vessels)
2. Adverse obstetric event
   a. ≥3 consecutive pregnancy losses <10 weeks of gestation
   b. ≥1 fetal death ≥10 weeks of gestation
   c. ≥1 preterm delivery for severe preeclampsia and/or placental insufficiency

Laboratory Criteria
The repeated positivity (medium-to-high titers or >40 units or above the 99th percentile) of any of the following aPL antibodies 12 weeks apart
a. Lupus anticoagulant
b. Anticardiolipin antibody (IgG and/or IgM)
c. Anti-β2-glycoprotein-I antibody (IgG and/or IgM)

Categorization
(number and type of positive aPL antibodies)
- **Category I:** more than one aPL antibody positive
- **Category IIa:** only LAC positive
- **Category IIb:** only aCL positive
- **Category IIc:** only anti-β2GPI positive

Substantial implications for clinical outcomes
LAC positivity more likely related with pregnancy complications and thrombosis than aCL or β2-GP-I positivity

Positivity for all three aPL antibodies (**Triple positivity**) has a greater impact on clinical outcomes than double or single aPL positivity

Complications in pregnancies with APS

Obstetric complications
- Severe Pre-eclampsia<34 weeks
- Recurrent pregnancy loss-3 or > spontaneous abortions
- Unexplained severe fetal growth restriction
- Oligohydramnios
- Unexplained 2nd or 3rd trimester fetal death
- Preterm birth

Non-obstetric complications
- Venous and arterial thrombosis
- Autoimmune Thrombocytopenia
- Autoimmune Hemolytic anemia
- Heart valve defects
- Skin involvement (livedo reticularis)
- Unexplained amaurosis fugax
- Cerebral involvement- cerebral infarctions, epilepsy, chorea, migraine
- Renal involvement- glomerulonephritis and interstitial nephritis
- Puci immune vasculitis

Postpartum syndrome
Rare syndrome characterised by
- pleuro-pulmonary disease
- fevers
- cardiacmanifestations

Management of Pregnancy with APS

Aim of Management
1. To maximise the chance of successful fetal outcome.
2. To prevent thrombosis and other clinical manifestations of APS in the mother.
3. To ensure good counselling and planning for future pregnancies.

Preconception counselling and risk stratification

General risk factor
- Maternal age
- Obesity
- Diabetes Mellitus
- Hypertension
- Thyroid diseases
- Nicotin and alcohol abuse

Disease related risk factors
- Previous adverse pregnancy outcomes
- aPL category
- History of vascular thrombosis in past
- Existing end organ damage and associated co-morbidities

Based on Lab parameters

High risk	Moderate risk	Low risk
LAC +/-; Mod-high titre of B2gpl or aCL IgG/IgM	LAC negative; Mod-high titre of B2gpl or aCL IgG/IgM	LAC negative; Low titre of B2gpl or aCL IgG/IgM

Moderate to high titer = 40 or more GPL or MPL units
Low titer= 20-39 GPL or mPL units

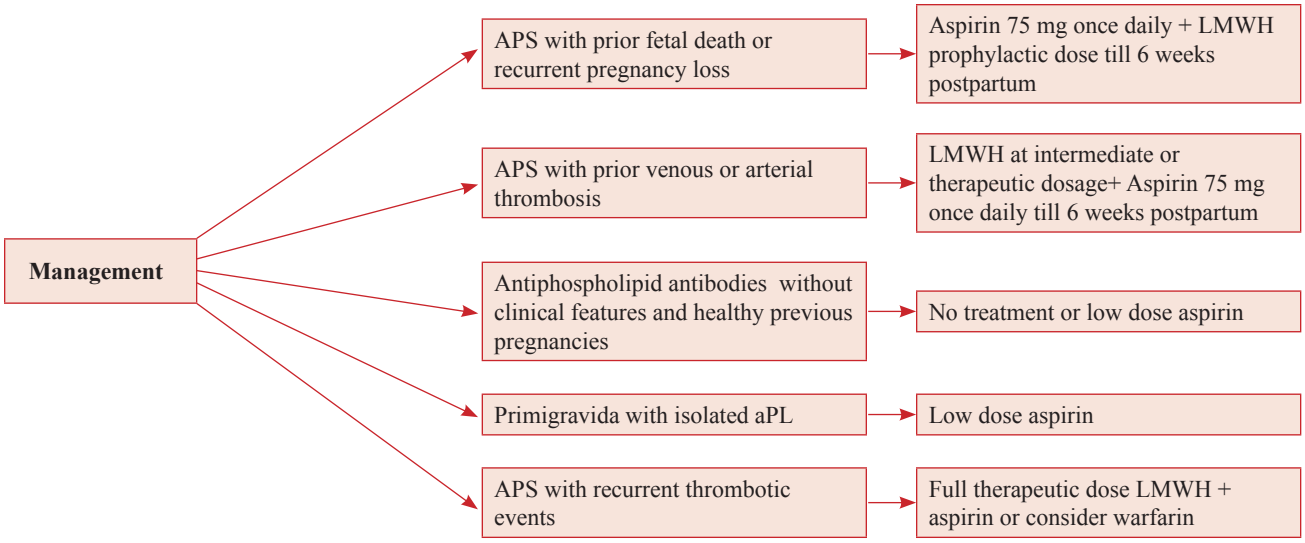
Maternal surveillance
- Monitor BP
- Assess for proteinuria
- Pre-eclampsia screen
- Surveillance for thrombosis
- Screen for Ro/La antibody

Fetal surveillance
- USG for growth parameters from 24 weeks
- Detect FGR (if any)
- Stage FGR f/b regular doppler
- Close fetal surveillance from >32 weeks with BPP

Treatment of choice
- Unfractionated (UFH)
- Low-molecular-weight heparin (LMWH)
- low-dose aspirin (75 mg once daily)

When to start
- LDA-pre-conceptionally or as soon as UPT is positive
- LMWH- started in early first trimester after documenting intrauterine fetus rising hCG

Agent	Prophylactic	Therapeutic
UFH (unfractionated Heparin)	1st Trimester: 5000-7500 units s/c q12hr, 2nd Trimester:7500-10000 units s/c q12hr, 3rd Trimester:10000 units s/c q12hr	UFH 10000 units or more s/c q12hr, to target aPTT in the therapeutic range (1.5-2.5) 6 hr after injection
LMWH (Low molecular weight heparin)	Enoxaparin 40mg s/c OD Dalteparin 5000 units s/c OD	Enoxaparin 1mg/kg s/c q12hr Dalteparin 200 units/kg s/c OD or 100 units/kg s/c q12hr Tinzaparin 175 units s/c OD (may target anti-Xa level:0.5-1.0 iu/ml)



Labour and delivery:

- Switched over LMWH to UFH (shorter half life) at 37 weeks POG

Regimen	When to stop	When to start after delivery
Prophylactic LMWH	10-12 hrs	6-8 hrs
Therapeutic LMWH	24 hrs 24-36 hrs	24 hrs

*LDA should be continued till at least upto 36weeks POG and should be stopped 24 hours to scheduled IOL or CS

Contraception

	Cu-IUD	LNG-IUD	Injectable DMPA	POP	COC
CDC 2016	1	2	2	2	4
WHO 2015	1	2	2	2	4

Suggested Reading

1. Atik RB, etal. ESHRE guideline : recurrent pregnancy loss. Human reproduction open 2018; 2018(2)hoy004.
2. Tektonidou MG,etal. EULAR recommendations for management of antiphospholipid syndrome in adults. Ann Rheum Dis 2019;78:1296-1304.
3. Green-top guideline No.37a. Reducing the Risk of Venous Thromboembolism during Pregnancy and the Puerperium. RCOG 2015;205:1-40.
4. ACOG practice Bulletin. Antiphospholipid Syndrome. 2012;20(6):1514-21.

Forthcoming Events

- Next Monthly Clinical Meeting on 27th December, 2019 (4:00-5:00 pm) at Sir Ganga Ram Hospital.
- NOTE : Monthly Meeting date of 31st January, 2020 has been changed to 17th January, 2020 due to AICOG Conference.

Royal College of Obstetricians & Gynaecologists

AICC Northern Zone India

Website: **www.aiccrcognzindia.com**

Chairperson: Dr Nirmala Agarwal: (n.menoky@gmail.com /9811888732)

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Registration Guidelines (Online registration available on website)

- Registration form to be downloaded from website **www.aiccrcognzindia.com**
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Events Held

- Conference on Aesthetic Gynaecology, 2019 on 9th & 10th November, 2019 organized by Dr Ragini Aggarwal under the aegis of AOGD & FOGSI.

- Update in Gynaecologic Oncology on 13th November, 2019 at AIIMS under the aegis of Oncology Committee AOGD.

- A CME on "High Risk Pregnancy" on 16th November 2019 under aegis of Safe Motherhood Committee AOGD at ESI Basaidarapur, organizes by Dr Taru Gupta.

- CME on "Tackling Obstetric Dilemmas" on 16th November, 2019 at The Surya under the aegis of FOGSI Medical Disorders in Pregnancy Committee & AOGD

- Breast Cancer screening Health Camp on 19th November, 2019 by GTB under the aegis of Rural Health Committee, AOGD.

- NARCHI pre congress workshop on "PPH" on 22nd November under aegis of Safe Motherhood Committee AOGD at the Northern Railway Hospital.

- CME on 27th November, 2019 under the aegis of DGF North, Breast and Cervical Cancer Awareness Screening & Prevention Subcommittee AOGD & Breast Committee FOGSI.



- Monthly Clinical Meeting on 29th November, 2019 at MAMC & LN Hospital, New Delhi.




- Dr Shashi Lata Kabra Maheshwari, Dr Mrinalini Mani , Dr Sushma Sinha and Dr Richa Sharma received Wonder FOGSI Award, 2019 at Mumbai by Dr Nandita Palshetkar.




Management of SLE in Pregnancy

Kusum Lata[1], Jyoti Meena[2]
[1]Assistant Professor [2]Associate Professor, All India Institutes of Medical Sciences, New Delhi

Epidemiology

- Incidence: 1:250
- 1/3 remain the same, 1/3 worsen, 1/3 improve
- Newly diagnosed cases in pregnancy: tend to be more severe

Best outcomes:

1. Quiescent for ≥6 months
2. No lupus nephritis
3. No APLA syndrome
4. No superimposed pre-eclampsia

Risk Stratification before pregnancy

Increased risk of flares, hypertension, fetal morbidity, FGR, preterm delivery associated with:

1. Flares in last 6 months
2. Nephritis: increases risk
3. High titer of C3/C4/dsDNA
4. APLA positive: need for LMWH, aspirin
5. Anti Ro/La positive: risk for neonatal lupus, congenital heart block
6. End organ damage: increased maternal and fetal risk

Planned pregnancy is important in SLE

- Women may have menstrual irregularities, conceive while on teratogenic drugs, or during high disease activity.
- If SLE is active at the time of conception, frequency of flare higher (61-67 %) during pregnancy
- Patients with Lupus Nephritis may have renal failure during pregnancy
- Advise conception based on co-morbidities: HTN, DM, APLA

Preconception Work up

- Anticardiolipin antibodies and lupus anticoagulant
- Anti-Ro and anti-La antibodies, Anti dsDNA and C3 (to assess disease activity)
- S. Free T3, T4 and TSH, Complete blood count (CBC)
- Liver Function tests, Uric acid
- Renal function (creatinine, urinalysis with urine sediment)

Maternal Monitoring

1. Weekly BP monitoring
2. Monthly CBC, KFT
3. Proteinuria screen at every visit
4. Early GDM screen, especially if on steroid therapy
5. Supplement Ca, Vit D, Iron
6. Monthly bacteruria screen

Fetal Complications

Neonatal Lupus Syndrome

- Rash (photosensitive), haematologic (thrombocytopenia and neutropenia) and hepatic abnormalities
- **Congenital Heart Block (**CHB affects about 2%, develops between18-24 weeks of gestation
- Increased PR interval (first degree heart block) forewarns the subsequent development of CHB
- Pacemakers may be required in the majority as lesion is permanent
- Efficacy of maternal fluorinated steroids unproven in CHB

Management in Pregnancy

- Requires Multidisciplinary approach

Treatment

- HCQ: associated with good outcomes if given before, during pregnancy
- Others: Prednisolone, Azathriopine, tacrolimus
- Refractory: IV Methylprednisolone 1000 mg for 3 days/ IVIG/ plasmapheresis
- Low dose aspirin continued throughout gestation.

Fetal monitoring

- Ist trimester: NT-NB and dual screen
- 18-20 weeks: CMF, Doppler with uterine artery
- 26-28 weeks: monthly growth parameter, liquor, doppler (umbilical artery)
- Fetal ECHO: if Anti Ro/La +, dysrhythmia, if previous child affected, from 16 weeks onward weekly. Counsel on 16% recurrence if previous child affected.

Contraception

- **Effective contraceptive measures** to be discussed with the patient by weighing the individual risk factors, disease activity and thrombotic risk (presence of antiphospholipid antibodies.
- **Copper** IUD can be offered to all.
- **OCPs & POP** in patients with inactive or stable SLE and negative APLA.
- **Emergency Contraception** with LNG is not contraindicated in SLE or APS.
- **Tubal sterilization** to be performed when disease is quiscent

Take Home Message

- Pregnancy in SLE is a high risk condition and active disease at the time of conception is is associated with worse maternal and fetal outcomes.
- Pregnancy should be planned when disease is quiescent for 6 months.
- Fetal surveillance based on biometric and Doppler findings during the third trimester helps to better tailor the time of delivery and reduce perinatal morbidity and mortality

Suggested Reading

Andreoli L, Bertsias GK, Agmon-Levin N, *et al. Rheum Dis* 2017;76:476–485.

Williams Obstetrics 25th edition Williams

Congratulations !!

Dr Neerja Varshney, Dr Supriya Chaubey and Dr Rohit Raina for correctly answering the Crossword and Pictorial Quiz of November issue

Answer: November Issue

Crossword

Down

1. Three
2. Progestasert
3. Chhaya

Across

1. Ten
2. Frameless
3. Breakthrough
4. Essure
5. Ulipristal
6. Antara
7. Ormeloxifene

Pictorial Quiz

Figure 1: 1) Implant
2) 0.02%

Figure 2: 1) Essure
2) 3 mths

Figure 3: 1) Frameless 10D
2) Young nullipare

Rheumatic Heart Disease in Pregnancy: An overview

Zeba Khanam[1], Jyotsna Suri[2]
[1]Senior Resident, [2]Professor, Department of Obstetrics & Gynaecology, VMMC & Safdarjung Hospital

Box 1: Pre-conceptional counseling in a patient of rheumatic heart disease

- Careful preconception planning, as well as care, monitoring and support during pregnancy, can improve outcomes for both mother and baby.
- Modified WHO (mWHO) risk stratification of cardiac diseases should be done during pre-conceptional period[1]
- A careful note of woman's pre-existing medications is made, namely anti hypertensives, anti-coagulants, diuretics, inotropics and beta blockers and necessary modifications made with the opinion of the cardiologist.
- Conditions where pregnancy is contraindicated or where termination is warranted if pregnancy is diagnosed
  1. Pulmonary arterial hypertension of any cause
  2. Severe systemic ventricular dysfunction (LVEF <30%, NYHA III–IV)
  3. Previous peripartum cardiomyopathy with any residual impairment of left ventricular function
  4. Severe mitral stenosis, severe symptomatic aortic stenosis
  5. Marfan syndrome with aorta dilated >45 mm
  6. Aortic dilatation >50 mm in aortic disease associated with bicuspid aortic valve
  7. Native severe coarctation of aorta

Box 2: Diagnosis of Rheumatic heart disease in pregnancy

1. Careful history and examination.
   - History of dyspnea, chest pain, syncopal attacks and productive cough.
   - Any new murmur, changes in murmur, pathological murmur (any diastolic murmur or greater than grade II systolic murmur)
   - Signs of heart failure
   - Echocardiography in unexplained or new cardiovascular signs or symptoms.
2. Blood pressure measurement in left recumbent position using standardized method.
3. Holter monitoring should in patients with known paroxysmal or persistent documented arrhythmia (ventricular tachycardia, atrial fibrillation or flutter)
4. Trans esophageal echocardiography-
   - Rarely needed in pregnancy.
   - Risk of vomiting, aspiration, sudden increase in intra-abdominal pressure should be taken into account. Fetal monitoring should be performed if sedation is used.
5. Exercise testing-
   - To objectively access functional capacity, chronotropic and BP response and exercise-induced arrhythmias
   - Should be performed with known heart disease, preferably prior to pregnancy to assist in risk assessment.
   - No evidence that it increases risk of spontaneous abortion[2].
   - Semi recumbent cycle ergometry appears to be the most comfortable modality
   - Treadmill walking or upright cycle ergometry may also be used.
   - Dobutamine stress should be avoided.
7. A chest radiograph, with shielding of the foetus, may be considered if other methods are not successful in clarifying the cause of dyspnoea.
8. Cardiac catheterization may be considered with very strict indications, timing, and shielding of the foetus.
9. CT and electrophysiological studies, with shielding of the foetus, may be considered in selected patients for vital indications.
10. Magnetic resonance imaging (MRI)
    - Useful in diagnosing complex heart disease or pathology of the aorta[3].
    - It should be only performed if other diagnostic measures, including transthoracic and trans oesophageal echocardiography fail to diagnose the cause.
    - Gadolinium use to be avoided[4].

Box 3: Antenatal concerns in a woman with Rheumatic heart disease

1. Pre-pregnancy risk assessment and counselling is indicated in women with known or suspected cardiovascular Rheumatic heart disease.
2. Risk assessment should be performed in all women with cardiac diseases of childbearing age and after conception.
3. High risk patients should be treated in specialized centres by a multidisciplinary team[5,6].
4. For the prevention of infective endocarditis in pregnancy the same measures as in nonpregnant patients should be used.
5. Prevention and management of anaemia and any infections
6. Operative interventions- best time is after four months of gestation in second trimester
   - Valvular surgery may be considered when conservative and medical therapy has failed, in situations that threaten the mother's life and that are not amenable to percutaneous treatment[7,8].
   - When gestational age is at least 28 weeks, delivery before necessary cardiac surgery should be considered[9].

Specific concerns in mitral stenosis

1. In patients with symptoms or pulmonary hypertension, restricted activities and beta1-selective blockers (Metoprolol or Bisoprolol) are recommended [10,11].
2. Diuretics are recommended when congestive symptoms persist despite beta blockers[11].
3. Patients with severe MS should undergo intervention before pregnancy. If at all it is planned percutaneous mitral commissurotomy is preferably performed after 20 week gestation and only in NYHA class III/IV and/or estimated systolic PAP>50 mmHg at echocardiography despite optimal medical treatment, in the absence of contraindications and if patient characteristics are suitable[10,11].
4. Therapeutic anticoagulation is recommended in the case of atrial fibrillation, left atrial thrombosis, or prior embolism.

Specific concerns in aortic stenosis

1. Echocardiography is mandatory for diagnosis [10,12].
2. Patients with severe AS should undergo intervention pre-pregnancy if they are symptomatic or have LV dysfunction (LVEF <50%).
3. Asymptomatic patients with severe AS should undergo intervention pre-pregnancy when they develop symptoms during exercise testing.
4. Asymptomatic patients with severe AS should be considered for intervention pre-pregnancy when a fall in blood pressure below baseline during exercise testing occurs.
5. Medical treatment and restricted activities are indicated for patients developing signs or symptoms of heart failure during pregnancy.
6. Diuretics can be administered for congestive symptoms.
7. A beta-blocker or a non-dihydropyridine calcium channel antagonist should be considered for rate control in AF. If both are contraindicated, digoxin may be considered[13].
8. During pregnancy in severely symptomatic patients not responding to medical therapy, percutaneous valvuloplasty can be undertaken. If not possible and patients have life-threatening symptoms, valve replacement should be considered after early delivery by caesarean section[14].

Specific concerns in regurgitant lesions

1. Women with severe regurgitation and symptoms or compromised LV function are at high risk of heart failure[15].
2. In asymptomatic women with preserved LV function the most frequent complications are arrhythmias.
3. Patients with severe aortic or mitral regurgitation and symptoms or impaired ventricular function or ventricular dilatation should be treated surgically pre-pregnancy.
4. Medical therapy is recommended in pregnant women with regurgitant lesions when symptoms occur.

Follow up during pregnancy

I. Mitral stenosis
   - Clinical and echocardiographic follow-up is indicated monthly or bimonthly depending on haemodynamic tolerance.
   - In mild MS, evaluation is recommended every trimester and prior to delivery.

II. Aortic stenosis
   - Regular follow-up during pregnancy is required by an experienced team.
   - In severe AS, monthly or bimonthly cardiac evaluations including echocardiography are advised to determine symptom status, progression of AS, or other complications.

III. Regurgitant lesions
   - Follow-up is required every trimester in mild/moderate regurgitation, and more often in severe regurgitation.
   - Follow-up plans need to be individualized according to clinical status and symptoms.

Box 4: Intrapartum and postpartum care

1. Vaginal delivery is recommended as first choice in most patients.
2. While there is no absolute contraindication to misoprostol or dinoprostone, there is a theoretical risk of coronary vasospasm and a low risk of arrhythmias. Dinoprostone also has more profound effects on BP than misoprostol and is therefore contraindicated in active cardiovascular disease. Mechanical methods such as a Foley catheter would be preferable to pharmacological agents, particularly in the patient with cyanosis[16].
3. Continuous fetal heart rate monitoring should be done.
4. Maternal BP and heart rate should be monitored in all patients.
5. Pulse oximetry and continuous ECG monitoring are advised to detect early signs of decompensation.
6. In some high-risk patients (PH), right atrial pressure monitoring may be considered.
7. Epidural analgesia reduces labour pain and can be used to provide anesthesia for caesarean section if necessary. However, it can cause systemic hypotension (10%) and must be carefully titrated in patients with obstructive valve lesions or diminished ventricular function.
8. All intravenous fluids need to be infused carefully.
9. At all times lateral decubitus position is recommended [17].
10. A careful watch of foetal head descent is required.
11. In severe symptomatic AS, particularly during the second half of the pregnancy, caesarean delivery should be preferred with endotracheal intubation and general anaesthesia. In non-severe AS, vaginal delivery is favoured.
12. The active phase of the second stage should be delayed for 2 h to allow maximal descent of the foetal head
13. Assisted delivery with forceps or a ventouse during the second stage of labour may be used to further reduce maternal efforts.
14. Active management of the third stage of labour is recommended. Slow i.v. infusion of oxytocin (2 U of oxytocin given over 10 min immediately after birth, followed by 12 mU/min for 4 h) reduces the risk of post-partum haemorrhage. Misoprostol (200–1000 mg) can be used to treat postpartum haemorrhage; however, ergometrine and prostaglandin F analogues should be avoided.
15. Prophylactic antibiotic therapy during delivery is not recommended [18].
16. The post-partum period is associated with significant haemodynamic changes and fluid shifts, particularly in the first 24–48 h after delivery, which may precipitate HF.
17. Haemodynamic monitoring should, therefore, be continued for at least 24–48 h in those at risk[19].
18. Meticulous leg care, elastic support stockings, and early ambulation are important to reduce risk of thromboembolism.
19. With preceding beta-blockade, infant monitoring for 48 h is recommended.
20. Lactation is associated with a low-risk of bacteremia secondary to mastitis and should be encouraged in patients with heart disease whenever possible.

Box 5: Indications for caesarean section in heart disease[10,20,21]

Caesarean delivery should be considered for obstetric indications and/or

1. Dilatation of the ascending aorta >45 mm
2. Severe aortic stenosis
3. Patient presenting in labour while on oral anticoagulants
4. Severe form of pulmonary artery hypertension
5. Eisenmenger syndrome
6. Acute intractable heart failure

Box 6: Contraception and follow up

1. Injectable progesterone only contraceptives (DMPA and NET en) are safe in valvular heart disease
2. Low dose oral contraceptives containing 20 mg of ethinyl estradiol are safe in women with a low thrombogenic potential, but not in women with complicated valvular disease (pulmonary hypertension, risk of atrial fibrillation, history of subacute bacterial endocarditis).
3. Levonorgestrel-based long-acting reversible contraception implants or intrauterine devices are the safest and most effective contraceptives. Barrier methods are unreliable. A good approach is the combination of barrier methods and long-acting reversible contraception.
4. A copper intrauterine device is acceptable. a. Antibiotic prophylaxis is not recommended at the time of insertion or removal. b. If excessive bleeding occurs at the time of menses, the device should be removed.
5. Tubal ligation is usually accomplished safely, even in relatively high risk women. a. Risks are increased in cases of pulmonary artery hypertension.
6. Vasectomy for the male partner is another efficacious option.

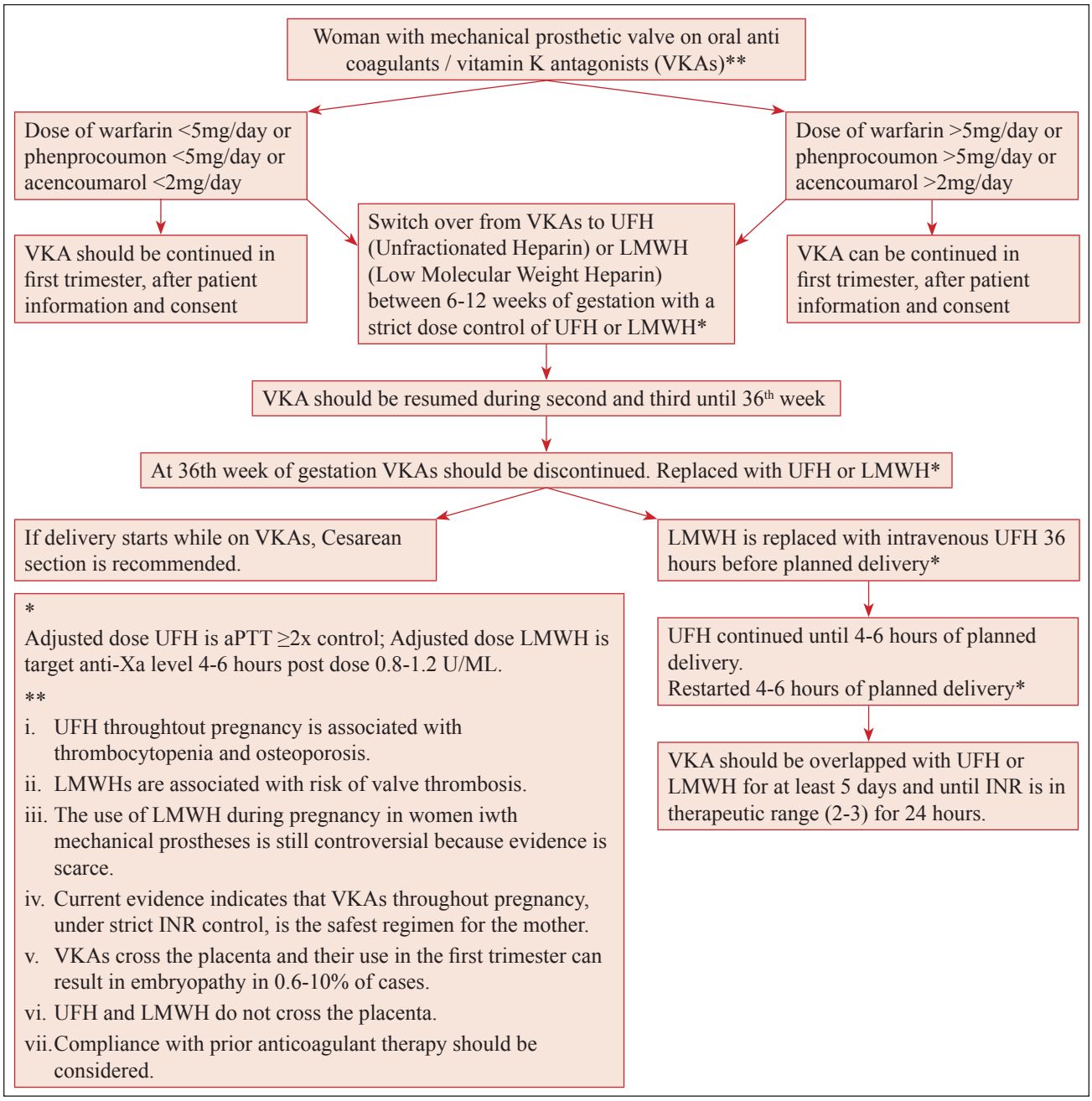

Figure 1: Recommendations for women with mechanical prosthetic valves

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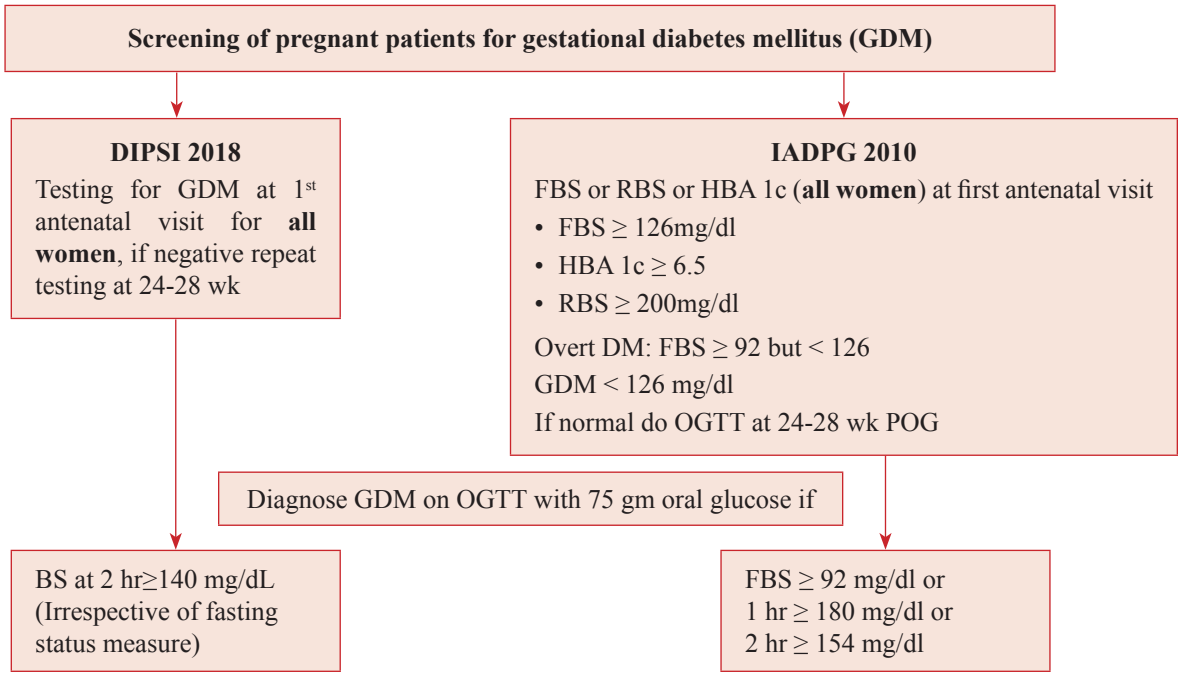
Calendar of Monthly Clinical Meetings 2019-20

Months	Name of the Institute
27th December, 2019	Sir Ganga Ram Hospital
17th January, 2020	Dr RML Hospital
28th February, 2020	UCMS & GTB Hospital
27th March, 2020	LHMC
24th April, 2020	Apollo Hospital

Gestational Diabetes in Pregnancy: Screening and management

Richa Vatsa, Garima Kachhawa
[1]Assistant professor, [2]Additional Professor, All India Institute of Medical Sciences, New Delhi.

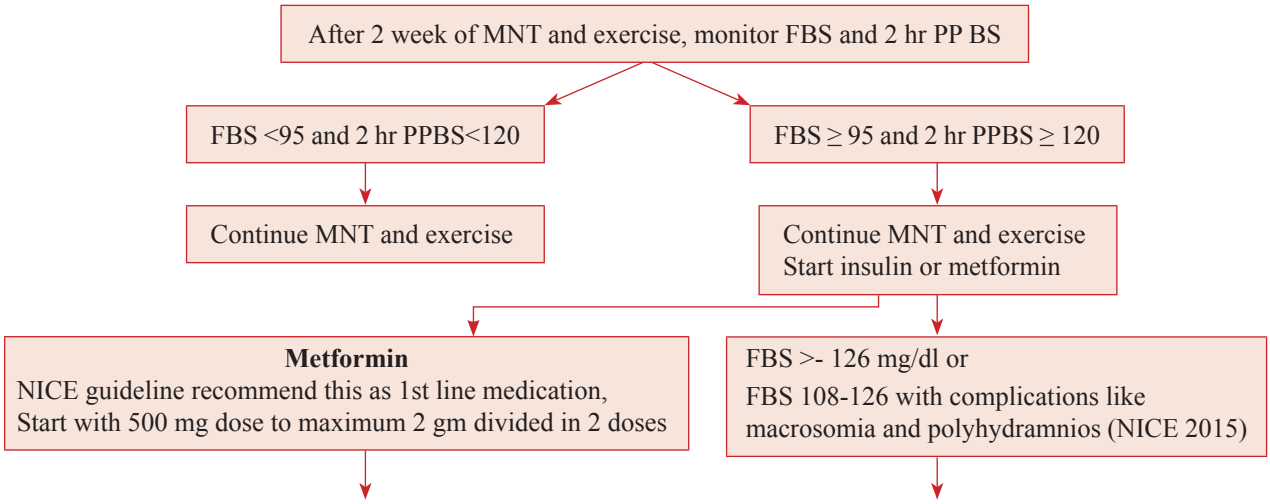


Management

- Regular exercise (such as walking for 30 minutes after a meal)
- Medical Nutrition therapy (MNT) 3 major + 3 minor meal pattern

	Level of Activity	Energy requirement during pregnancy	Total energy requirement (kcal/Day)
1	Sedentary work	1900+350	2250
2	Moderate work	2230+350	2580
3	Heavy work	2850+350	3200

- Addition of 350 Kcal can be made for pregnant women



β
Sugar not controlled on metformin

Insulin

Human premix insulin (30/70) or regular (Actrapid) with intermediate acting (Insulitard)

DIPSI guideline recommend only insulin (Human premix 30/70) for GDM

FBS ≥ 95 mg/dl: Pre Dinner 4U insulin
2 Hr PP BS ≥ 120: Pre Breakfast insulin

Blood sugar (mg/dl)	Insulin (U)
120-140	4
140-160	6
160-180	8

Still FBS ≥ 95 mg/dl and/ or 2 Hr PP BS ≥ 120: Increase dose of insulin by 2u Pre dinner and /or Pre breakfast respectively
Repeat FBS and PPBS every 3rd day till dose of insulin adjusted.

Fetal monitoring

Fetal growth scan should be performed at 28-30 wk POG & repeated at 34-36 wk POG

At least 3 wk gap between two ultrasounds for fetal biometry & AFI estimation.

Explain about daily fetal movement activity assessment

Labour and delivey

GDM with well controlled BS: IOL at or after 39 wk POG (DIPSI)/ 40^{+6} wk (NICE 2013)

GDM with poor BS control, those with risk factors like hypertensive disorder of pregnancy, previous still birth & other complications timing of delivery: Individualised

Fetal macrosomia (EFW >4 kg) consideration for a primary CS at 39 weeks to avoid shoulder dystocia

Special precaution during labour

Omit morning dose of insulin/metformin on day of induction/labour, monitor 2 hourly monitoring of blood sugar.

IV infusion with NS & add regular insulin according to BS levels as per table below.

Blood Sugar Level	Insulin added in 500 ml NS	Rate of NS Infusion
90-100	0U	100 ml/hr (16 drops/min)
120-140 mg/dL	4U	100 ml/hr (16 drops/min)
140-180 mg/dL	6U	100 ml/hr (16 drops/min)
>180 mg/dL	8U	100 ml/hr (16 drops/min)

Post delivery follow up of pregnant women with GDM

OGTT with 75 gm glucose (F and 2 hr PP) 6 wk postpartum: cut off values

FBS: ≥ 126 mg/dl

2 hr PP: Normal: < 140 mg/dl, IGT: 140-199 mg/dl, DM: ≥ 200 mg/dl

Suggested Reading

NICE guideline on diabetes in pregnancy 2015
IADPSG Consensus Panel. Diabetes care 2010
DIPSI guideline, Govt Of India 2018

Pregnancy with Chronic Kidney Disease (CKD)

Juhi Bharti, Deepali Garg
Assistant Professor, Department of Obstetrics & Gynaecology, All India Institute of Medical Sciences, New Delhi.

Definition

Kidney damage for ≥ 3 months (structural or functional abnormalities of the kidney) ± decrease in GFR[1]

OR

GFR[1] < 60 ml/min/1.73 m^2 for ≥ 3 months ± kidney damage

Classification of CKD

KDOQI classification	
Stage	GFR (ml/min/1.73m^2)
I	≥ 90
II	60-89
III	30-59
IV	15-29
V	< 15

Prognostic classification (Davison 2011)	
S.Creatinine (mg/dl)	Degree of impairment
<1.5	Normal or mild
1.5-3	Moderate
>3	Severe

Preconception care

Multidisciplinary team (MDT)
(Nephrologist+ Maternal fetal medicine+Geneticist+Anesthetist)

Risk Stratification

- CKD stage
- BP
- Proteinuria
- Anemia
- Thrombosis risk
- DM/GDM risk
- BMI
- Comorbidities
- Infection risk
- Obstetric history

Calculation of eGFR

1. MDRD

186x $(S.Cr)^{-1.154}$x $(age)^{-0.203}$x (0.742)
x (1.212 if black race)

1. Cockroft-Gault formula

[(140-age)xweightx0.85]/ 72x S.Cr, adjusted for BSA by 1.73m^2/BSA

Age in yrs, weight in kg, S.cr in mg/dl

Note: eGFR calculation is not valid in pregnancy, serum creatinine more reliable

Informed-shared decision making

Desirous of planning pregnancy?

No

see next page

Contraception

Most effective/durable: LARCs

Permanent method: Sterilization

Short term method: DMPA/POP/ Combined E+P

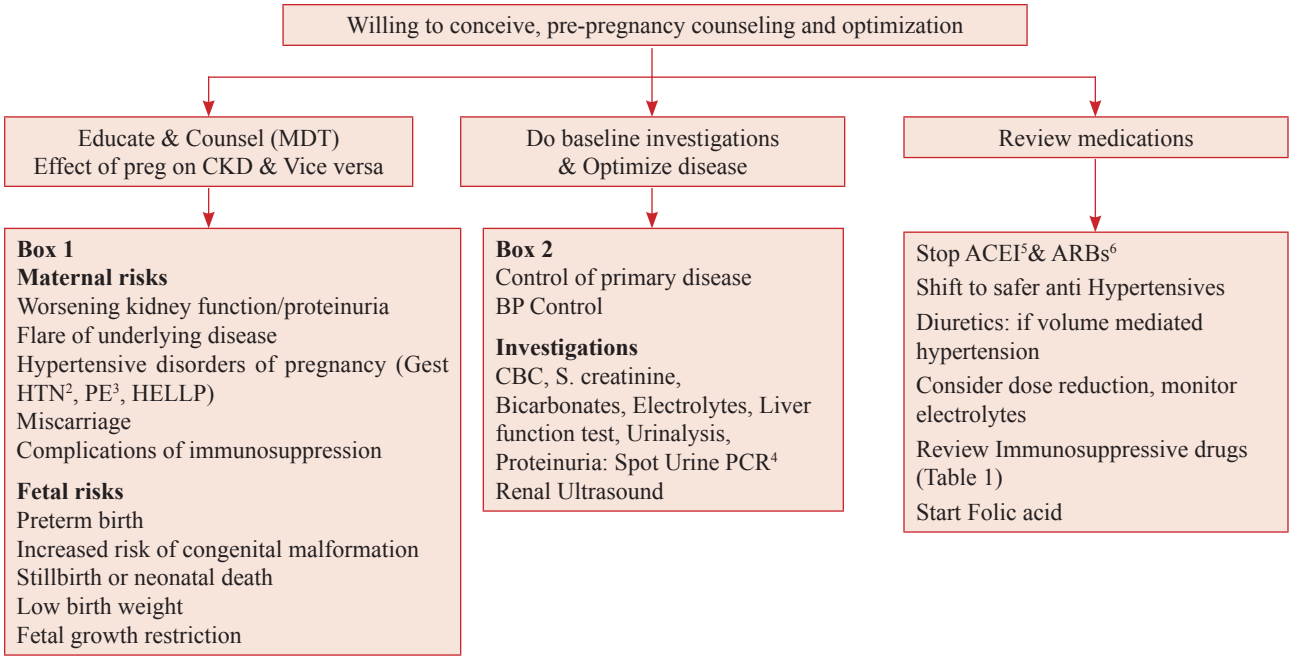
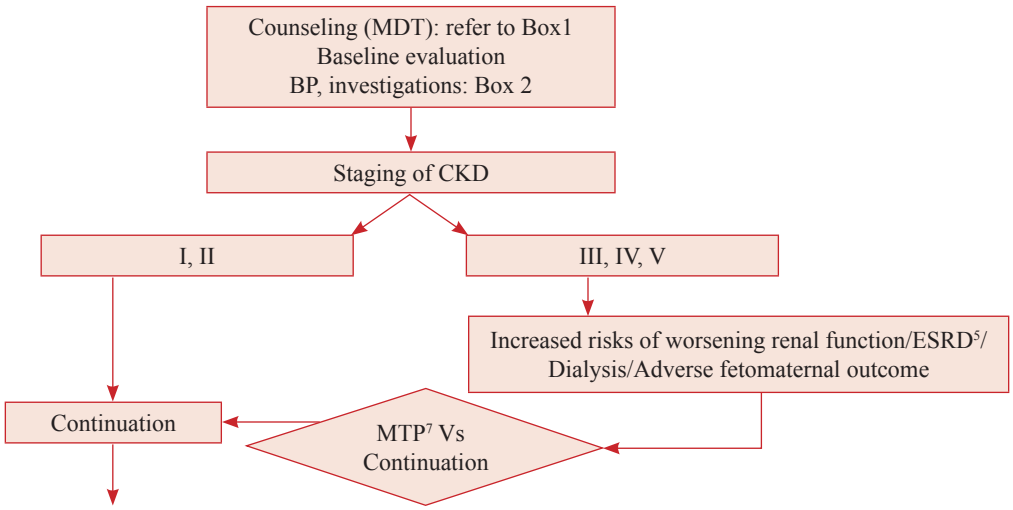


Table 1: Recommendations of immunosuppressive medications in pregnancy

Drug	Effects on Pregnancy	Recommendation in pregnancy
Prednisolone	Maternal HTN & GDM Risk of thymic hyperplasia & adrenal suppression in neonate	May be continued Avoid prolonged high doses
Azathioprine	No teratogenicity	May be continued
Tacrolimus	Increased risk of GDM Transient neonatal renal dysfunction and hyperkalemia	May be continued Monitor & adjust levels Early OGTT
Cyclosporine A	No teratogenicity, maternal HTN	May be continued, monitor levels
Mycophenolate mofetil	Teratogenic & embryopathic Multiple congenital defects	Stop 12 weeks prior to conception
Cyclophosphamide	Teratogenic in first trimester	Stop 12 weeks prior to conception

[1]GFR: Glomerular Filtration rate, [2]HTN: Hypertension, [3]PE: Preeclampsia, [4]PCR: Protein Creatinine ratio,
[5]ACEI: angiotensin -converting enzyme inhibitors, [6]ARBs: angiotensin receptor blocker, [7]MTP: Medical termination of pregnancy

Pregnancy Management



Maternal surveillance
Frequent ANC visits*
q 2 weekly initially
>32 weeks-weekly

Investigations*
Renal function: monthly
Proteinuria- monthly
BP- weekly
Bacteriuria-each trimester
GDM screening: early

Fetal surveillance
Routine screening
Risk of false positive due to increased B hCG (renal excretion)
cffDNA or invasive testing may be required
Fetal growth from 28 weeks q 2-3 wks
Weekly/biweekly BPS after 28 weeks

Optimize Condition

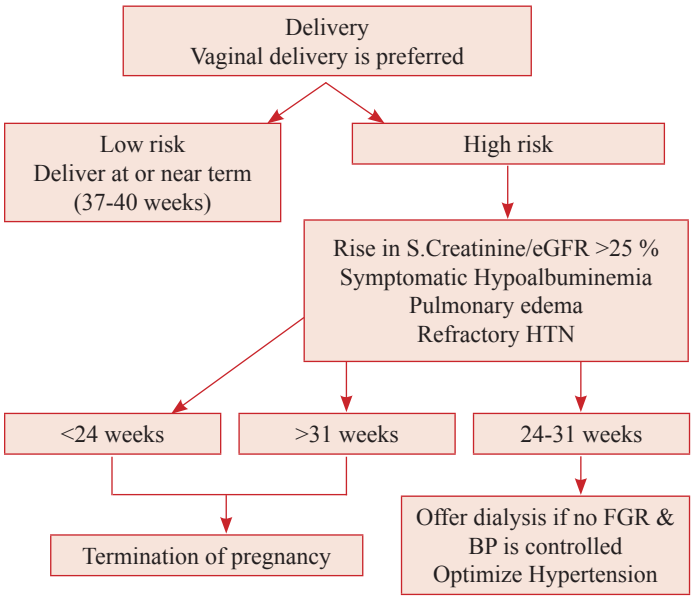
Preeclampsia prevention
Tab Ecosprin 150 mg HS from 12 weeks till 36 weeks

Nutrition (Dietician counseling)
Diet suitable for pregnancy & renal disease
Limit non nutritive sources of Phosphate

Anemia
Iron supplementation
Add erythropoietin to non dialysis CKD patients if Hb<10

Hypertension
Target BP-110/70 to 135/85
Safe antihypertensive drugs: Labetatol, CCB-Nifedipine, α methyl dopa.
Add diuretics if associated edema and reduced GFR

Thromoprophylaxis with LMWH if nephrotic range proteinuria



Metabolic Bone Disease
(Women on treatment in preconception period)
Monitor Calcium, Phosphorus, 25 OH Vit D, PTH once every trimester
Use Phosphate binders: Calcium carbonate

Indications of delivery
Severe Preeclampsia
Fetal Growth Restriction
Non reassuring fetal heart testing
Worsening renal disease

Indication of hemodialysis
- eGFR <20ml/min/1.73 m^2
- Signs/symptoms of uraemia
- Persistent volume overload
- Refractory acidosis
- Hyperkalemia
- Hyperphosphatemia

Postpartum period
- ACE inhibitors may be resumed
- Captopril, Enalapril not excreted in breast milk
- Continue Erythropoietin and IV Iron as necessary
- Monitor electrolytes, Creatinine & Urine PCR
- Maintain BP-140/90
- Avoid dehydration and pulmonary edema
- Measure urine output and look for sign of fluid overload
- Avoid NSAID
- Safe & effective contraception

Algorithmic Approach to Liver Disease in Pregnancy

Sharda Patra
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Background

Liver disease in pregnancy manifests mostly with jaundice as first sign or with abnormal liver function tests. Jaundice in pregnancy is one of the major indirect cause of maternal mortality and is responsible for 5-30% of all maternal deaths. Jaundice in pregnancy when presents in a milder form with mild elevation in liver enzyme is associated with a favorable maternal fetal outcome. However when it presents in a more severe form associated with an alarmingly abnormal elevations in liver enzymes, the resulting liver failure and death of the mother and her fetus, then becomes a cause of concern.

Management

Algorithmic management depending on the cause of liver disease and biochemical markers is shown in Fig 4, 5, 6

Conclusion

Liver disease in pregnancy poses a diagnostic and management dilemma. Thus the management of jaundice in pregnancy do present with many dilemmas from diagnosis to its management but an in depth understanding of the physiologic changes during pregnancy, ability to identify and treat liver disorders, and a proper vigilance in recognizing clinical and laboratory abnormalities in a timely manner along with a coordinated team approach management involving the primary care physician, obstetrician, hepatologist, and a transplant surgeon can to some extent promote a favourable maternal and fetal outcomes.

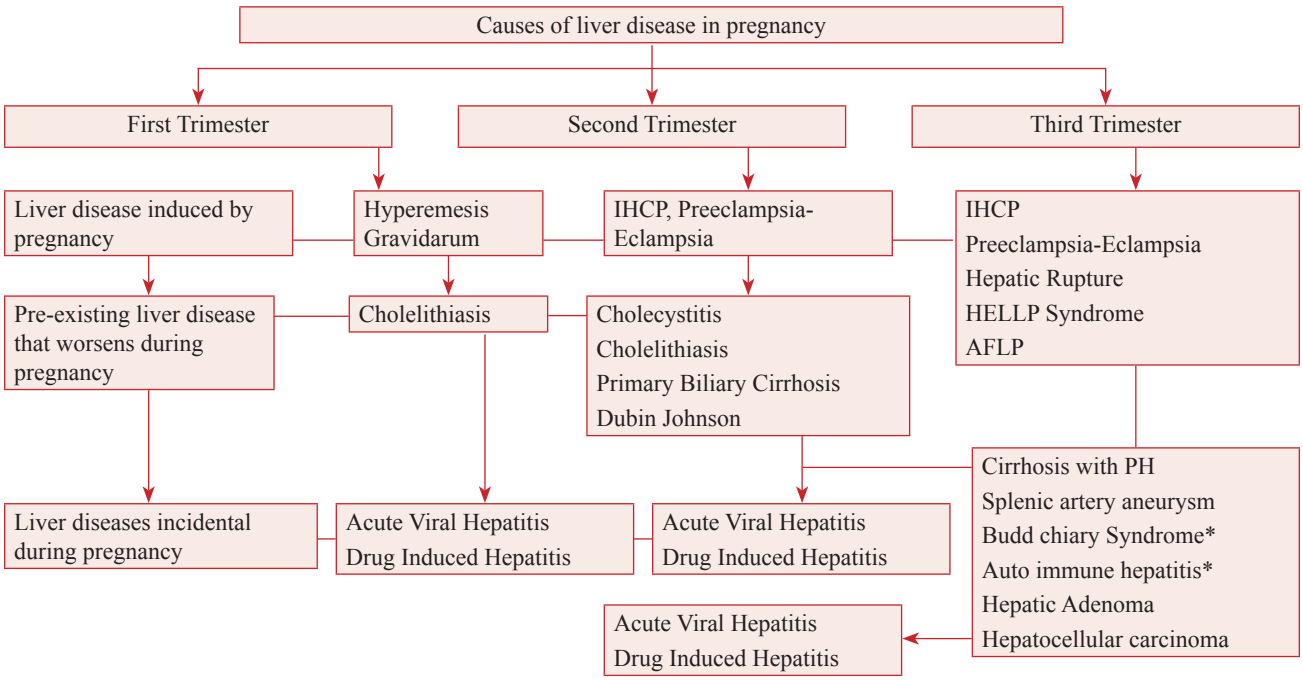

Figure 1: Causes of liver disease in Pregnancy

*Most commonly manifests in postpartum period

Abbreviations: IHCP- Intrahepatic Cholestasis of pregnancy, **AVH-** Acute Viral Hepatitis **AFLP-** Acute fatty liver of pregnancy **HELLP-** Hemolysis, Elevated Liver enzymes and Low Platelet count syndrome, **PH-** Portal Hypertension

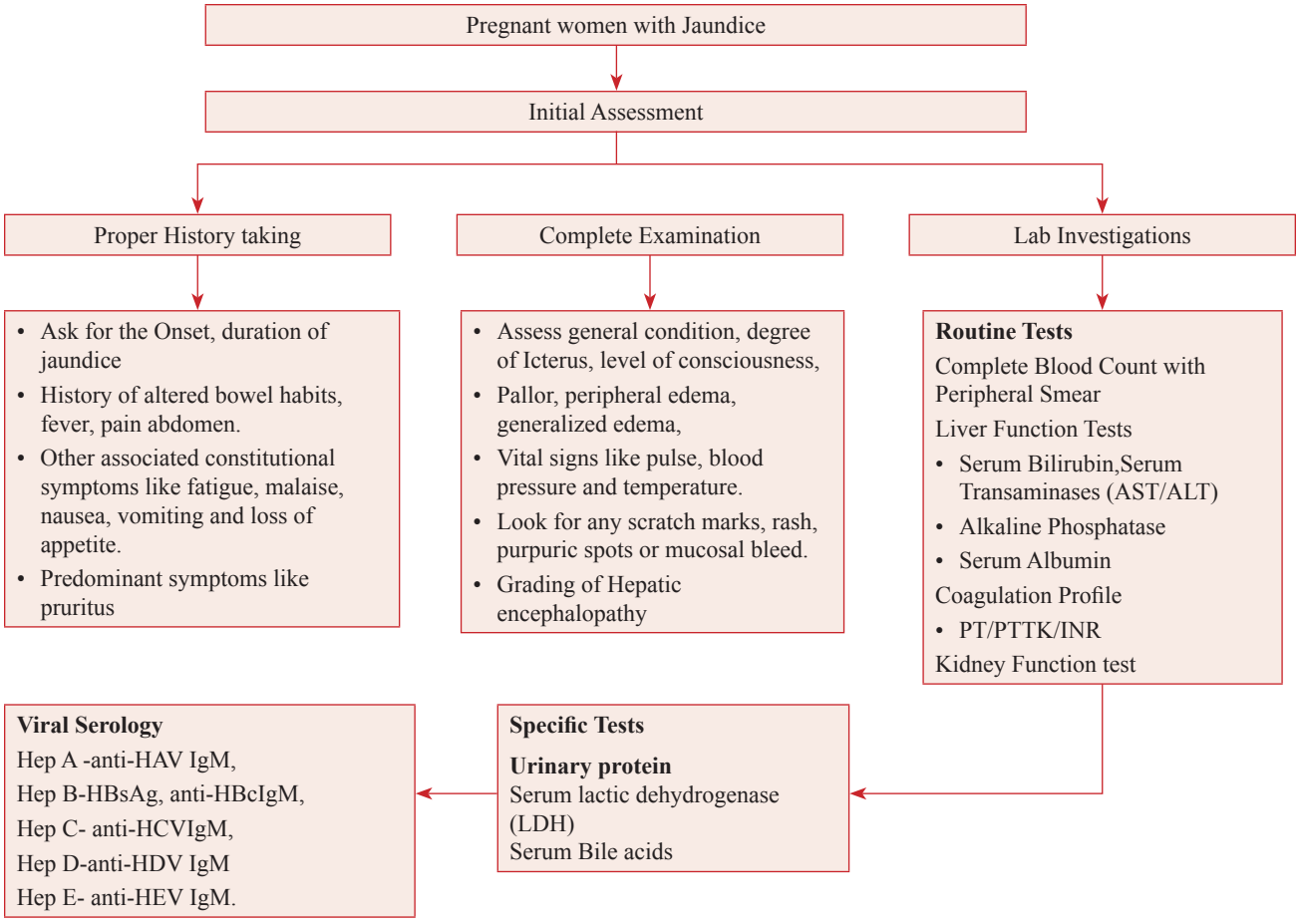

Figure 2: Algorithmic Initial Work up of a pregnant women presenting with jaundice in Pregnancy

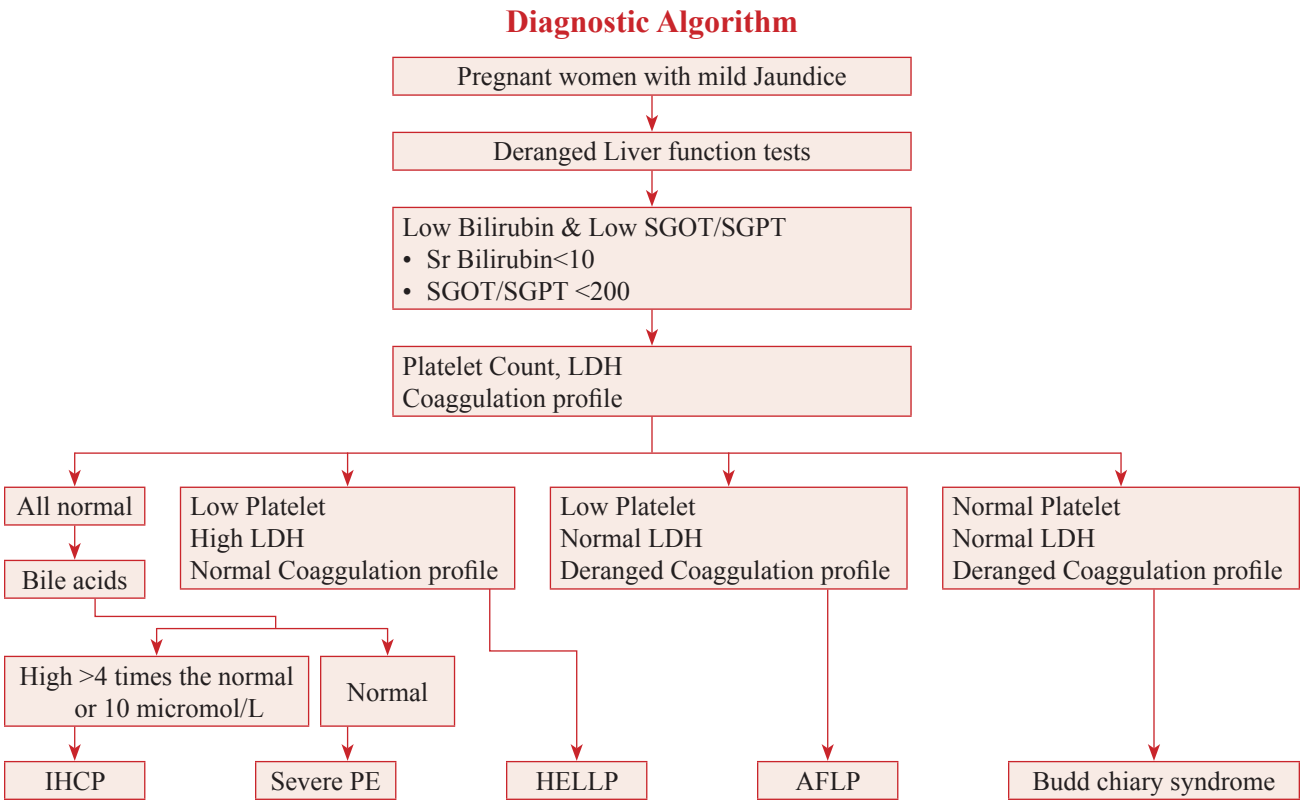

Figure 3: Algorithm of work up of a pregnant women presenting with Severe jaundice based on Lab investigations

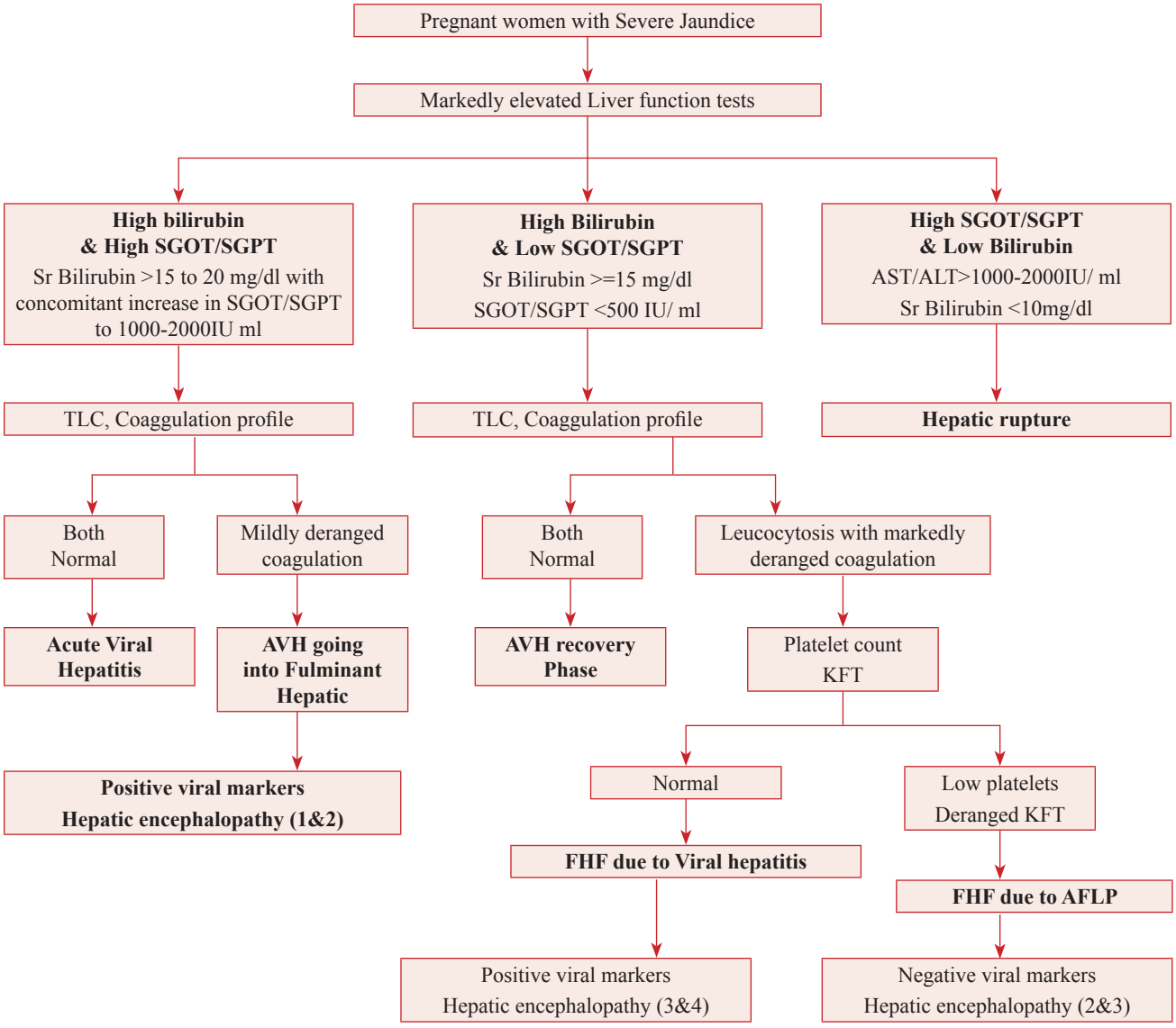

Figure 4: Algorithm of Management of a pregnant women presenting with mild jaundice

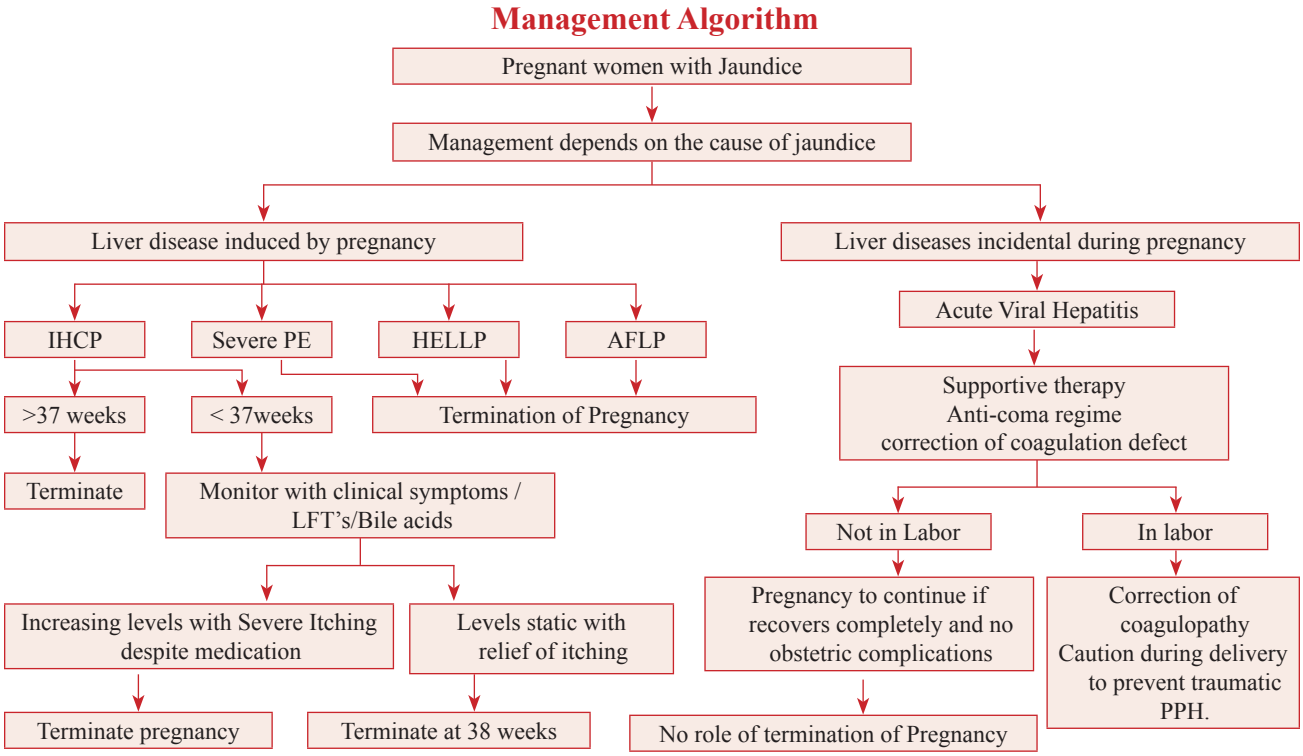

Figure 6: Algorithm of Management of a pregnant women presenting with mild jaundice

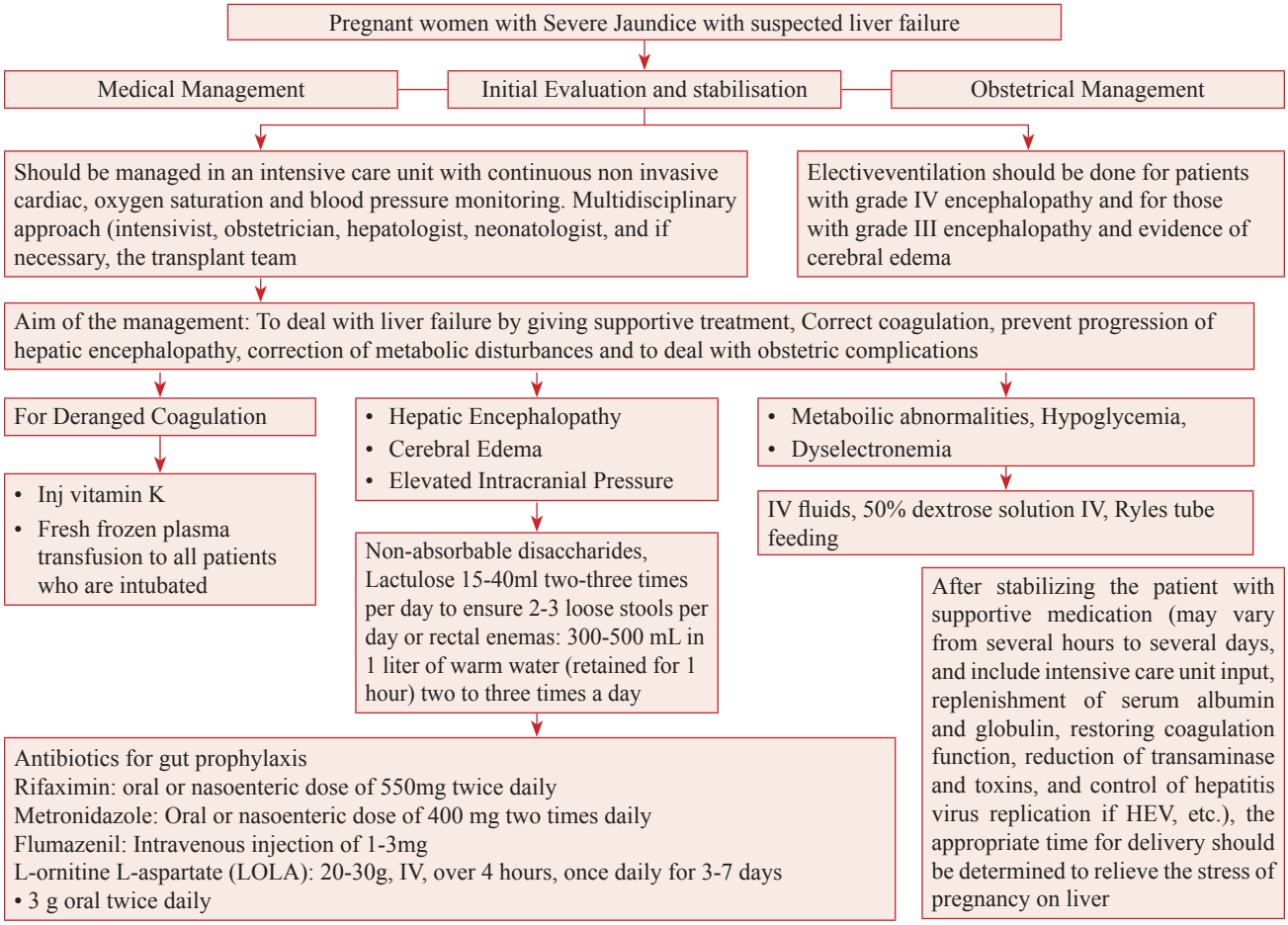

Figure 6a: Algorithm of management of a pregnant women presenting with Severe jaundice with suspected liver failure-Medical management

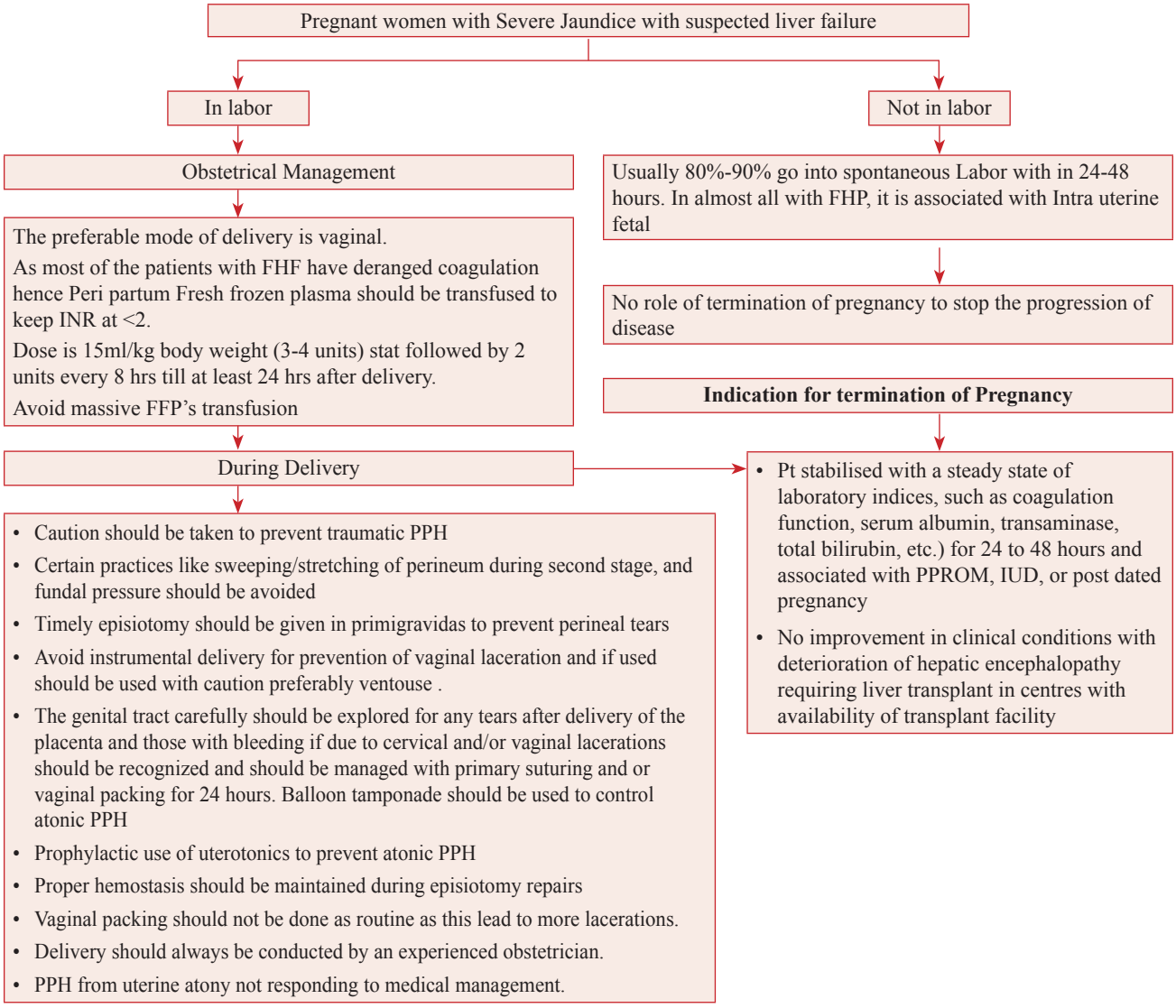

Figure 6b: Algorithm of management of a pregnant women presenting with Severe jaundice with suspected liver failure-Obstetrical management

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Immunization in Pregnancy

Soniya Dhiman[1], Vidushi Kulshrestha[2]
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Vaccines safe in pregnancy:
Toxoids - Diphtheria, tetanus
Bacterial vaccines - Acellular pertussis

Inactivated viral vaccines -
- Inactivated influenza
- Inactivated Polio Vaccine (IPV)
- Hepatitis A
- Rabies

Fractional
- Typhoid (parenteral)
- Hepatitis B
- Pneumococcal
- Meningococcal

Yellow Fever, though live attenuated, can be given if indicated

Vaccines contraindicated during pregnancy:
Live Attenuated Vaccines

Viral -	**Bacterial -**
Measles	BCG
Mumps	Oral Typhoid
Rubella	Human papilloma virus (HPV)
Vaccinia	
Varicella	
Herpes Zoster	
Rotavirus	
Live attenuated influenza	
Oral Polio	

- After administration, pregnancy should be avoided for at least 4 weeks.
- Termination is not recommended on inadvertent administration.
- HPV: If HPV vaccine series was interrupted for pregnancy, the series should be resumed postpartum with the next dose.
- HPV vaccine can be given to breastfeeding women 26 years and younger who have not been previously vaccinated.
- Though there is viral shedding with live vaccines, close contacts of pregnant women may be immunised.

Vaccines Recommended during every pregnancy:

TT, Td or Tdap

TT (Tetanus toxoid): As per National Immunization Programme 2019
- 0.5 mL IM, 2 doses 4 weeks apart, in upper arm, first dose early in pregnancy.
- Only TT Booster- if received 2 TT doses in a pregnancy within the last 3 years.
- Second dose TT or TT booster can be given before 36 weeks or after 36 weeks of pregnancy or in labour, if she has not received previously.

Td (Tetanus, diphtheria toxoid): As per WHO 1998
- 0.5 mL IM, 2 doses 4 weeks apart. Td Booster- if received 2 Td doses in a pregnancy within the last 3 years.
- National Technical Advisory Group on Immunization (NTAGI), Ministry of Health & Family Welfare has recommended the replacement of TT vaccine with Td vaccine in India's immunization programme for all age groups, including pregnant women.

Tdap (tetanus toxoid, reduced diphtheria toxoid and acellular pertussis): As per ACOG Committee 2017
- Single IM dose, preferably between 27-36 weeks of gestation or at any time during pregnancy if needed such as in pertussis outbreak or wound management.
- Once received, no need to repeat the dose at 27-36 weeks.
- Tdap vaccination at 27–36 weeks gestation maximises passive antibody transfer to the newborn and protects infant from pertussis till age of routine infant vaccination (8 weeks).
- if not given during pregnancy, give postpartum if woman has never received a prior dose of Tdap as an adolescent, adult or during a previous pregnancy.
- In patients with unknown or incomplete tetanus vaccination–dT, 3 doses, at 0,1, and 6 -12 months after the 2nd. One dose of dT replaced with Tdap preferably given between 27-36 weeks of gestation. (ACOG Committee 2017)

Influenza:
Inactivated Influenza:
- One dose IM, should be given with each influenza season. (Vaccine should be administered at least one month prior to the commencement of the season.
- Can be given in any trimester, irrespective of duration of pregnancy.
- Provides passive immunity to the fetus.
- In suspected/documented infection- immunization should be given along with treatment with oseltamivir.

Special vaccines for certain population:

S. No	Immunological agent	Indications for immunization during pregnancy	Dose Schedule	Comments
1	Pneumococcus a) 23-valent pneumococcal polysaccharide vaccine (PPSV23)	a) Heart disease, lung disease, sickle cell disease, diabetes, other chronic illnesses.	In adults, one dose only; repeat dose in 6 years in high risk women	a) PSPV13, safety in 1st trimester has not been evaluated.
	b) 13-valent pneumococcal vaccine (PCV13)	b) Human immunodeficiency virus (HIV) infection and asplenia.		b) PCV13 vaccine should be deferred in pregnant women.
2	Meningococcus a) Quadrivalent conjugate meningococcal vaccine (MenACWY) b) Meningococcalsero group B vaccine	• Individuals with HIV infection • Complement component deficiency (including eculizumab use) • Functional or anatomic asplenia (including sickle cell disease) • Exposure during disease outbreak • Travel to endemic • Microbiologist routinely exposed to Neisseria meningitidis.	One dose, tetravalent vaccine	Meningococcal serogroup B vaccine should be deferred in pregnant women, unless the woman is at increased risk of serogroup B meningococcal disease
3	Rabies	Postexposure prophylaxis	Each case considered individually	
4	Hepatitis A	Chronic liver disease, clotting-factor disorders, traveling, drug abusers	Two doses IM 6 months apart	
5	Hepatitis B	Women who have • Hepatitis B surfaceantigen–positivehousehold contacts or sex partners • More than one sex partner during the previous 6 months • Evaluated or treated for a sexually transmitted infection • Current or recent injection-drug users • Chronic liver disease • HIV infection	Three doses series IM at 0,1 and 6 months	Used with hepB IgG for some exposure
6	Poliomyelitis	For women at risk	two doses of IPV SC at at4-8 week intervals and a 3rd dose 6-12 months after the 2nd.	Travelling in endemic areas
7	Yellow Fever	For women at risk	Single dose SC	Travelling in endemic areas
8	Typhoid	Women having close, continuous exposure or travel to endemic areas	Two doses IM 4 weeks apart	Inadequate data.

Specific Immunogobulins:

S. No	Immunological agent	Indications for immunization during pregnancy	Dose Schedule	Comments
1	Hepatitis B	Post exposure prophylaxis	Depends on exposure	Given with Hep B vaccine to exposed neonates.
2	Rabies	Post exposure prophylaxis	Half dose at injury site, half dose at deltoid.	given with vaccine.
3	Tetanus	Post exposure prophylaxis	One dose IM	given with tetanus toxoid.
4	Varicella	To exposed pregnant women	one dose IM within 96 hours of exposure	

Vaccines for the future:

1. Respiratory syncytial virus (RVS) Vaccine: boost the neonatal immunity by trans placental transfer, specially for the first three months of life.
2. Group B streptococcal vaccine: maternal immunisation will help in prevention of GBS disease in mothers and newborns.

Take Home Message

- Obstetrician–gynaecologists and other obstetric care providers should routinely assess their pregnant patient vaccination status.
- All vaccines are safe in lactating women.
- MMR, Varicella, Tdap, Inactivated influenza vaccines should be given postpartum if not received at all.

Suggested Reading

ACOG Committee Opinion. Williams 25th edition CDC 2016/2017 NIS 2019- (mohfw.gov.in)

Journal Scan - I

Shikha Sharma
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Placental growth factor testing to assess women with suspected pre-eclampsia: a multicentre, pragmatic, stepped-wedge cluster-randomised controlled trial.

Kate E Duhig, Jenny Myers, Paul T Seed, Jenie Sparkes, Jessica Lowe, Rachael M Hunter, Andrew H Shennan, Lucy C Chappell, on behalf of the PARROT Trial Group

Introduction: Hypertension affects 10% of pregnant women, and pre-eclampsia complicates around 3% of singleton pregnancies. Diagnosis is based on clinical features such as hypertension and raised urinary protein excretion, both of which are subject to observer error, heterogeneity in test accuracy, and an insufficient ability of clinicians to predict important adverse pregnancy outcomes. The presentation of pre-eclampsia is often clinically ambiguous, and risk stratification of women with suspected pre-eclampsia is complex. This ambiguity leads to repeated hospital attendances for antenatal monitoring, increased use of health resources, and considerable anxiety for women, while missing at-risk cases

Angiogenic factors being associated with the pathophysiology of pre-eclampsia, have shown good performance in predicting the need for delivery in women with suspected pre-eclampsia. In a study of the accuracy of tests in diagnosing pre-eclampsia, low circulating maternal placental growth factor (PlGF) concentrations had a high sensitivity (96%; 95% CI 89–99) and negative predictive value (98%; 93–99·5) in diagnosing pre- eclampsia that required delivery within 14 days in women who presented with suspected pre-eclampsia.

Aims and Objectives: This study aimed to determine whether knowledge of circulating PlGF concentration, integrated with a clinical management algorithm, decreased the time for clinicians to make a diagnosis in women with suspected pre- eclampsia. Also, to determine whether this approach reduced subsequent maternal or perinatal adverse outcomes.

Background: Previous prospective cohort studies have shown that angiogenic factors have a high diagnostic accuracy in women with suspected pre-eclampsia, but there is still uncertainty regarding the effectiveness of these tests in a real-world setting. It was aimed to determine whether knowledge of the circulating concentration of placental growth factor (PlGF), an angiogenic factor, integrated with a clinical management algorithm, decreased the time for clinicians to make a diagnosis in women with suspected pre-eclampsia, and whether this approach reduced subsequent maternal or perinatal adverse outcomes.

Methods: This was a multicentre, pragmatic, stepped-wedge cluster-randomised controlled trial in 11 maternity units in the UK, which were each responsible for 3000–9000 deliveries per year. Women aged 18 years and older who presented with suspected pre-eclampsia between 20 weeks and 0 days of gestation and 36 weeks and 6 days of gestation, with a live, singleton fetus were invited to participate by the clinical research team. Suspected pre- eclampsia was defined as new-onset or worsening of existing hypertension, dipstick proteinuria, epigastric or right upper-quadrant pain, headache with visual disturbances, fetal growth restriction, or abnormal maternal blood tests that were suggestive of disease (such as thrombocytopenia or hepatic or renal dysfunction). Women were approached individually, they consented for study inclusion, and they were asked to give blood samples. The maternity units, representing the clusters, were randomly allocated to blocks. Blocks represented an intervention initiation time, which occurred at equally spaced 6-week intervals throughout the trial. At the start of the trial, all units had usual care (in which PlGF measurements were also taken but were concealed from clinicians and women). At the initiation time of each successive block, a site began to use the intervention (in which the circulating PlGF measurement was revealed and a clinical management algorithm was used). Enrolment of women continued for the duration of the blocks either to concealed PlGF testing, or after implementation, to revealed PlGF testing. The primary outcome was the time from presentation with suspected pre-eclampsia to documented pre-eclampsia in women enrolled in the trial who received a diagnosis of pre-eclampsia by their treating clinicians. This trial was registered with ISRCTN, number 16842031.

Findings: Between June 13, 2016, and Oct 27, 2017, 1035 women with suspected pre-eclampsia were enrolled

and assessed. Of the 1023 eligible women, 576 (56%) women were assigned to the intervention (revealed testing) group, and 447 (44%) women were assigned to receive usual care with additional concealed testing (concealed testing group). Three (1%) women in the revealed testing group were lost to follow-up, so 573 (99%) women in this group were included in the analyses. One (<1%) woman in the concealed testing group withdrew consent to follow-up data collection, so 446 (>99%) women in this group were included in the analyses. The median time to pre-eclampsia diagnosis was 4·1 days with concealed testing versus 1·9 days with revealed testing (time ratio 0·36, 95% CI 0·15–0·87; p=0·027). Maternal severe adverse outcomes were reported in 24 (5%) of 447 women in the concealed testing group versus 22 (4%) of 573 women in the revealed testing group (adjusted odds ratio 0·32, 95% CI 0·11–0·96; p=0·043), but there was no evidence of a difference in perinatal adverse outcomes (15% *vs* 14%, 1·45, 0·73–2·90) or gestation at delivery (36·6 weeks *vs* 36·8 weeks; mean difference –0·52, 95% CI –0·63 to 0·73).

Interpretation: It was found that the availability of PlGF test results substantially reduced the time to clinical confirmation of pre-eclampsia. Where PlGF was implemented, there was a lower incidence of maternal adverse outcomes, consistent with adoption of targeted, enhanced surveillance, as recommended in the clinical management algorithm for clinicians. Adoption of PlGF testing in women with suspected pre-eclampsia is supported by the results of this study.

Summary: A major challenge in modern obstetrics is early identification of pregnancies at high-risk of early onset PE and undertaking the necessary measures to improve placentation and reduce the prevalence of the disease.

Extensive research in the last 20 years, mainly as a consequence of the shift in screening for aneuploidies from the second- to the first-trimester of pregnancy, has identified a series of early biophysical and biochemical markers of impaired placentation. Using a novel Bayes-based method that combines prior information from maternal characteristics and medical history, uterine artery pulsatility index (PI), mean arterial pressure (MAP), and maternal serum pregnancy-associated plasma protein-A (PAPP-A) and placental growth factor (PlGF) at 11–13 weeks' gestation can identify a high proportion of pregnancies at high-risk for early onset PE.

A large number of biochemical markers have been investigated for the prediction of PE. Maternal serum PAPP-A and PlGF are two biochemical markers that have been investigated extensively and have shown promising results in the early prediction of PE. The addition of maternal serum PAPP-A and PlGF to maternal factors improves the detection rates from 36% to 60% and from 33% to 43%, at false-positive rate of 5%, and from 51% to 74% and from 43% to 56%, at false-positive rate of 10%, for PE requiring delivery before 34 and 37 weeks' gestation, respectively.

This trial has demonstrated that, the clinical use of PlGF measurement could present a change for antenatal care that improves speed of diagnosis and improves pregnancy outcomes. The findings of this study provide novel evidence supporting the adoption PlGF testing as a diagnostic adjunct for suspected pre-eclampsia. Evaluation of the intervention with women stratified by PlGF category could further elucidate the mechanisms by which PlGF testing and our management algorithm affect maternal outcomes.

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Journal Scan - II

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What Is New in Maternal Heart Disease?

Best Articles From the Past Year

Metz TD. Obstet Gynecol 2019;133:181–2.

Dr Metz reviewed four recent papers on heart disease with pregnancy.

Pregnancy Outcomes in Women with Heart Disease: The CARPREG II Study

Silversides CK et al. J Am Coll Cardiol 2018;71: 2419–30.

Several models exist to predict the likelihood of serious morbidity or mortality in women with heart disease who opt to pursue pregnancy. Investigators from two large Canadian tertiary care hospitals prospectively followed 1,938 pregnancies among women with maternal heart disease for cardiac outcomes from 1994 to 2014. Aims were to examine temporal trends and identify predictors of complications antepartum or postpartum. Cardiac complications (maternal cardiac death, cardiac arrest, sustained arrhythmia requiring treatment, left- or right-sided heart failure, stroke or transient ischemic attack, cardiac thromboembolism, myocardial infarction, vascular dissection) were present in 16% of the cohort. Complication rates did not change over time. General cardiac factors, lesion specific variables, and late pregnancy care variables were ultimately included in the CARPREG-II risk prediction model. With a C-statistic of 0.77 (95% CI 0.74–0.81), the CARPREG-II model exceeded the predictive capability of existing models and may allow for improved risk assessments for women with cardiac disease. However, unique individual circumstances must still be considered.

PREDICTOR	POINTS
Prior cardiac events or arrhythmias	3
Baseline NYHA III-IV or cyanosis	3
Mechanical valve	3
Ventricular dysfunction	2
High risk left-sided valve disease/ left ventricular outflow tract obstruction	2
Pulmonary hypertension	2
Coronary artery disease	2
High risk aortopathy	2
No prior cardiac intervention	1
Late pregnancy assessment	1

The CARPREG (Cardiac Disease in Pregnancy Study) II risk score is based on 10 predictors, shown in the box above. Each predictor is assigned a weighted point score. The sum of points represents the risk score. Risk scores are categorized into the 5 groups: 0 to 1 points; 2 points; 3 points; 4 points and >4 points The predicted risks for primary cardiac events stratified according to point score were 0 to 1 points (5%), 2 points (10%), 3 points (15%), 4 points (22%), and >4 points (41%).

Bottom Line: The CARPREG-II prediction model integrates both lesion-specific and general factors to improve prediction of cardiac morbidity among women with heart disease in pregnancy and postpartum.

Pregnancy Outcomes in Women with Rheumatic Mitral Valve Disease: Results from the Registry of Pregnancy and Cardiac Disease

Van Hagen IM et al. Circulation 2018;137:806–16.

Investigators used data from the international, prospective Registry of Pregnancy and Cardiac Disease to examine pregnancy outcomes for women with rheumatic mitral valve disease and no history of valve replacement. Of 390 included women, 75.4% were from developing countries. The majority (70%) had mitral stenosis with or without regurgitation. Before pregnancy, 26.9% had a percutaneous or surgical valve repair. During pregnancy, heart failure was common, affecting 23.1% of women with moderate or severe mitral regurgitation. Similarly, hospital admission, typically for heart failure, was common among women with mitral stenosis (23.1% overall and 49.1% with severe stenosis). A New York Heart Association Classification of II or greater was associated with adverse cardiac events (odds ratio 3.77, 95% CI 1.93–7.38). In women with severe stenosis (valve area less than 1.0 cm2), those with an intervention before pregnancy had fewer adverse cardiac events than those without a repair (14%versus 66%, P5.014).

Bottom Line: Almost 50% of pregnant women with severe mitral stenosis and 23% of those with significant mitral regurgitation developed heart failure. Preconception counselling with pre-pregnancy valve repair or replacement should be considered in women with mitral valve disease.

Subsequent Pregnancy Outcomes in Patients with Peripartum Cardiomyopathy

Codsi E, Rose CH, Blauwet LA. Obstet Gynecol 2018; 131:322–7.

Data regarding how to counsel women with a history of peripartum cardiomyopathy about the risk of relapse in subsequent pregnancies are limited. Investigators used a retrospective cohort design to evaluate neonatal and maternal outcomes of all pregnant patients with prior peripartum cardiomyopathy at a single center from January 2000 to March 2017. There were 43 subsequent pregnancies among 25 participants; all but one woman had recovery of cardiac function to a normal ejection fraction (50% or greater) before any subsequent pregnancy. The majority (76.7%) of subsequent pregnancies resulted in live births (four late preterm). Relapse occurred in nine women over the 43 pregnancies, for a relapse rate of 20.9%. There were no deaths, and all women who relapsed again recovered normal ventricular function, with a median recovery time of 1 month. Although the cohort is limited by small numbers and may be biased to women with favourable outcomes after the incident pregnancy, the authors provide valuable information for counseling women with a history of peripartum cardiomyopathy.

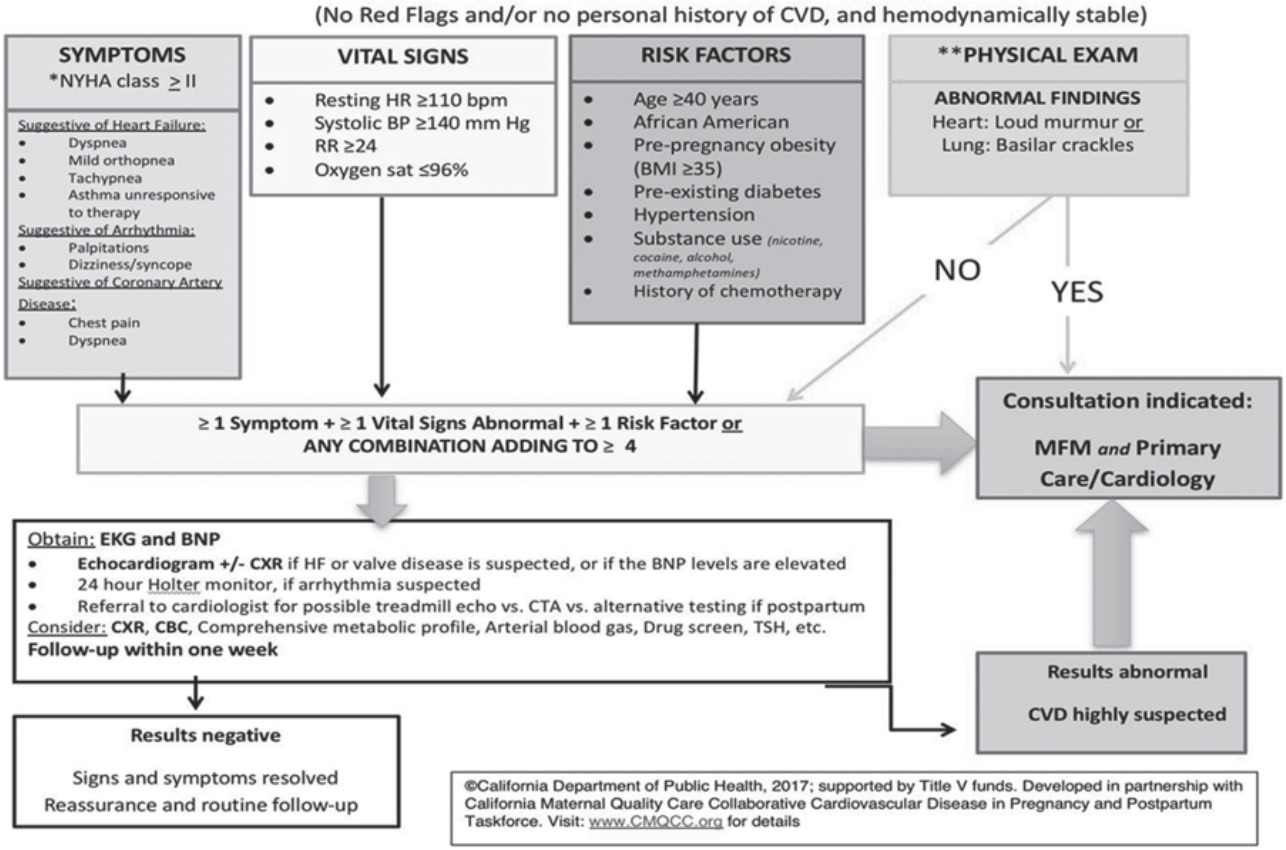
Bottom Line: Women with a history of peripartum cardiomyopathy and recovered cardiac function (normal ejection fraction) had a 21% chance of relapse in subsequent pregnancies.

Improving Healthcare Response to Cardiovascular Disease in Pregnancy and Postpartum

Hameed AB, Morton CH, Moore A. Retrieved October 23, 2018.

Cardiovascular disease is the leading nonobstetric cause of maternal mortality. As such, the California Maternal Quality Care Collaborative partnered with the California Department of Public Health to produce a toolkit for clinicians to improve the health care response to cardiovascular disease in pregnancy and postpartum. This toolkit is free and available to health care providers on the California Maternal Quality Care Collaborative's website: https://www.cmqcc. org/resources-toolkits/toolkits/improving-healthcare-response-cardiovascular-disease-pregnancy-and. The toolkit consists of algorithms to guide risk stratification and evaluation of women with known cardiac disease or signs and symptoms of cardiac disease. Specifically, signs and symptoms that should prompt evaluation by a specialist are delineated. In addition, the toolkit provides health care providers with recommended resources for caring for women with complex cardiovascular disease in pregnancy, which includes discussions of appropriate contraceptive counseling and information about the risk profiles of various

cardiac medications. Finally, the document focuses on known racial disparities in cardiovascular disease prevalence and outcomes.



CARDIOVASCULAR DISEASE ASSESSMENT IN PREGNANT and POSTPARTUM WOMEN

Bottom Line: A toolkit to improve health care provider response to cardiovascular disease in pregnancy and postpartum is free for download and use by clinicians. The purpose of the toolkit is to prevent maternal morbidity and mortality related to cardiovascular disease in pregnancy.

Editor's comments: Heart disease is one of the most important cause of maternal morbidity and mortality especially in the developing countries. Lack of access or late access to health care is the major cause of poor outcome in such patients. The complication rate increases with severity of lesion and NYHA functional status. Hence early booking in pregnancy, early diagnosis by thorough clinical examination at initial visit and prompt management will help to avert untoward consequences. Preconception counselling with valve repair or replacement prior to pregnancy should be considered in women with mitral valve disease. Balloon mitral valvotomy during pregnancy is a safe and technically feasible procedure which will help to reduce the cardiac complications with better maternal fetal outcome.

Peripartum cardiomyopathy is a rare form of pregnancy associated idiopathic dilated cardiomyopathy developing in last trimester to first five months postpartum. There is around 21% chance of recurrence of disease in subsequent pregnancy. The 2011 European Society of Cardiology guidelines state that subsequent pregnancies should be discouraged in patients with nonrecovered ventricular function, providing the nondirective recommendation of the "need for counselling because of the risk of recurrence with a new pregnancy" in patients who recover LV function. A recent scientific statement from the American Heart Association makes very similar recommendations. Hence, proper counselling of women is must before planning for next pregnancy. CARPREG II risk score is a good predictor of morbidity in women with heart disease in pregnancy.

Clinical Proceedings of AOGD Clinical Meeting held at MAMC & LN Hospital, New Delhi on 29th November, 2019

Aggressive Angiomyxoma

Y M Mala, Sarah F Siddiqui, Shikha Sharma

Background

Aggressive Angiomyxoma is a rare (only 350 cases reported till now worldwide), locally invasive mesenchymal tumor that most commonly arises in the vulvovaginal region, perineum and pelvis of women. We present here 2 rare cases of Aggressive Angiomyxoma with varying presentations one arising from pelvis and other from the vulva. While one underwent complete surgical excision of the neoplasm with no evidence of recurrence in the subsequent follow-ups the other patient succumbed to pulmonary and renal metastasis.

Case Presentations

A 45 year old lady referred from a private hospital with provisional diagnosis of cervical fibroid based on her MRI findings. On examination, a large mass was felt in the vagina which was firm, smooth, nontender and immobile. She later developed retention of urine. CT scan revealed a large (13 x 12x 10 cms) mass displacing bowel, uterus, ureters, causing, hydroureteronephrosis and bilateral renal metastasis. Her chest x-ray too revealed probable metastasis. Biopsy of the mass was performed which confirmed diagnosis of Angiomyxoma. Immunohistochemistry was performed and found to be positive for vimentin, estrogen and progesterone receptors. She opted for neoadjuvant GnRH therapy. Unfortunately, the patient expired soon after initiating the therapy.

The second patient presented with mass growing on right side of vulva having increased massively in size during her recent pregnancy, now measuring 10 x 8 cms with a pedicle of 10 x 2cms. Histopathology and immunohistochemistry confirmed Aggressive Angiomyxoma for which wide local excision was done. There was no evidence of recurrence noted till date.

Discussion

Aggressive angiomyxoma has a very high risk for local relapse even though metastasis is very rare. Hence we need to differentiate it from other mesenchymal tumors occurring in this region. Clinically it presents mostly as asymptomatic mass varying in size from 1 to 60 cms with cut section revealing homogenous, gelatinous and glistening appearance. Microscopically it reveals spindle and stellate cells in a myxoid stroma with vessels of varying caliber scattered throughout. While pathogenesis is not well understood, it is hormonally responsive and recent studies have identified chromosomal abnormality involving chromosome 12 as one of the causes.

Complete resection with negative margin is the mainstay of treatment. Chemotherapy and radiotherapy are not effective due to scarce mitotic figures. As it is estrogen and progesterone positive GnRH may be given pre and post-operatively. Vascular embolization also plays a role in the management of the cases. Since incidence of recurrence is high, follow-up is advised as long as 15 years.

Intrabdominal Fibromatosis – An intriguing presentation in gynecological setting

Deepti Goswami, Divya Singh, Varuna Mallya, Nidhi Verma, Gauri Gandhi

Case-

18-year old unmarried girl presented with low grade fever and abdominal distension, on workup she was diagnosed as a case of Stage III C mixed germ cell tumor. She underwent staging laparotomy and six cycles of adjuvant chemotherapy (Bleomycin, Etoposide, Paclitaxel). She was discharged and followed up subsequently, on follow up a n abdominopelvic mass of 24 weeks size was noted which kept on growing at a very rapid pace. An exploratory laparotomy was done and the mass was removed which was histopathologically proven as intrabdominal fibromatosis. Post laparotomy there was recurrence and the abdominopelvic mass continued to grow at a very fast speed in view of which weekly chemotherapy with injection methotrexate and vinblastin. She did not tolerate the chemotherapy well and developed severe neutropenia, lung consolidation and she succumbed to these complications after second cycle of chemotherapy.

Discussion

Fibromatosis is a slow growing proliferation of fibroblast like cells with no atypia. In a rapidly growing abdominopelvic mass fibromatosis should be considered as a differential and a multidisciplinary team should be involved in management.

Complete Androgen Insensitivity Syndrome

Patient Miss X, 18 years old with chief complaints of swelling in bilateral inguinal area and primary amenorrhea.

The patient has 4 sisters. On review of history, the two sisters of age 15 years and 13 years respectively, were called to our OPD with similar complaints of bilateral inguinal swellings. On examination,

- Breast development- Tanner stage 3/4, soft no mass palpable
- Pubic hair- very scant, Tanner stage 1
- Axillary hairs- absent

Per Abdomen Examination

- A soft cystic to firm fluctuant swelling of around 4x4 cm palpable in left inguinal area, non tender.
- Another small mobile lump of size 2x2 cm felt in right inguinal area, firm consistency with no tenderness.

Local Examination

- External genitalia- normal female, with developed labia majora.
- Blind vagina of 2-3 cm.

Per Rectal Examination

- Uterus and cervix not felt
- No mass felt in PR examination

Hormonal Profile

- S. FSH- 3.4 mIU/ml (1.5-12.4 mIU/ml)
- S. LH- 23.5 mIU/ml (1.7-8.6 mIU/ml)
- S. Testosterone- 4.6 ng/ml (male: 2.8-8 ng/ml, female: 0.06-0.82 ng/ml)
- S. Estradiol- 51.04 pg/ml (male:10-40 pg/ml, female: 50-250 pg/ml)
- S. AMH- 54.1 ng/ml (male: 20-40 ng/ml, female: 2-5 ng/ml)

Ultrasound

- Uterus and cervix not visualised likely absent. There is e/o solid mass lesion of 3.6x6.5 cm in left inguinal region with multiple oval hypoechoic nodules showing internal vascularity within, largest nodule around 15.1x6.8 mm, few cystic areas also noted.
- Right inguinal region shows a similar lesion of size 2.2x1.2 cm with multiple hypoechoic nodules with internal vascularity.

Impression: ? undescended testis

FNAC: Likely streak gonads/gonadal dysgenesis possibility of atrophic testes.

MRI

- Non visualization of uterus, cervix and upper two third of vagina, distal vagina appear normal.
- No definite ovarian tissue seen at normal expected location
- Oblong ovoid soft tissue intensities areas seen in b/l inguinal region with prominent in left inguinal region with few follicles like structures at periphery D/D gonads (?herniated ovaries).
- Bladder is normal and bilateral kidneys are normal.
- Review - masses suggestive of undescended testes

Genetic Testing

- Karyotype- 46, XY
- AR Gene Analysis
  - Mutation in AR gene, EXON 2 deletion. (x:66,863,091-66,863,258) Homozygous zygosity
  - Same mutation in the two sisters with bilateral inguinal masses (46, XY).
- Patient & her parents counselled
- Patient was operated and laparoscopic gonadectomy was done.
- Histopathology of bilateral inguinal masses was suggestive of leydig cell hyperplasia and sertoli cells.
- Complete androgen insensitivity syndrome was first described by John Morris in 1953 and Coined “Testicular Feminization”
- Its is a Disorder of hormone resistance with XY Karyotype and Female phenotype

Disorder of androgen action

- Complete Androgen Insensitivity (CAIS)
- Partial Androgen Insensitivity (PAIS)
- Mild Androgen Insensitivity (MAIS)
- The mutation can lead a spectrum of complete phenotype female to infertile male
- Four widely investigated mutations

- o Single point mutations
- o Deletions/ insertions
- o Partial or complete gene deletions involving a large part of the gene sequence
- o Mutations involving introns altering RNA splicing

Our Patient- Exon 2 deletion- Homozygous

Differential Diagnosis: Mayer-Rokitansky-Kuster-Hauser syndrome

Other mullerian duct anomalies—eg, transverse vaginal septae

Management is Individualised and Multidisciplinary.

Treatment:

- Gonadectomy is delayed until puberty is complete (~16-18 years) and Overall risk of testicular germ cell tumour (TGCT)- ~5-10%. (Seminoma most common) which before puberty is ~0.8-2%
- Hormone replacement with estrogens

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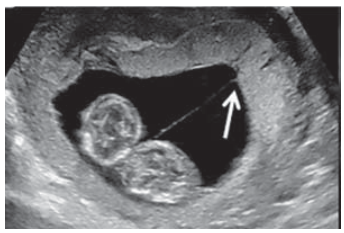
The Maze of Knowledge

Abhijeet Kumar, Harpreet Kour Isher
All India Institutes of Medical Sciences, New Delhi

1. The ultrasonic image below is suggestive of
   a. Amniotic band b. Dichorionic twins
   c. Monochorionic twins d.TTTS



2. Planned vaginal delivery is appropriate for HIV+ mothers when HIV RNA copies /ml are less than
   a. 50 b. 500
   c. 1000 d. 200

3. Regarding SLE in pregnancy, all the following are true except
   a. SLE flares up in pregnancy
   b. Risk of neonatal lupus with one affected child is 10%.
   c. Fall of complement level more than 25% indicates active lupus
   d. Titres of ANA do not change with disease activity

4. Regarding pre-existing diabetes in pregnancy, all are true except
   a. Risk of congenital malformations is 25% if HbA1c>10%
   b. Diabetic nephropathy does not worsen in preganancy
   c. Diabetic retinopathy can progress in pregnancy
   d. Fetus tolerates maternal hyoglycemia better than maternal ketoacidosis

5. Charecteristic features of acute fatty liver of preganacy are all except
   a. Profund hypoglycaemia
   b. Thrombocytopenia
   c. Coagulopathy
   d. Marked hyperuricemia

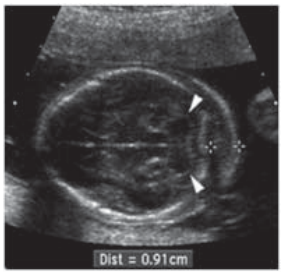
6. Which of the following is least likey to be used as a treatment in ITP in pregnancy, remote from term
   a. Anti D
   b. IV Ig
   c. Corticosteroids
   d. Platelet transfusion

7. Intracranial hemorrhage of the fetus can be caused by all of the following in the mother except
   a. Immune thrombocytopenic purpura
   b. TORCH infections
   c. APLA
   d. Factor VIII deficiency

8. Regarding ionising radiation in pregnancy, all of the following are true except
   a. Fetal exposure to background radiation is greater than 3 mGy.
   b. Use of lead shielding is able to reduce fetal exposure by 80%.
   c. Computerised tomography pulmonary angiogram (CTPA) is associated with an increased risk of maternal breast cancer.
   d. There is a proven link between fetal exposure to diagnostic doses of ionising radiation and childhood cancer.

9. The risk of congenital heart disease in the baby of a mother with congenital heart disease is
   a. 10% b. 1%
   c. 5% d. 2%

10. The above ultrasound image of the fetus showing the distance in callipers measuring 0.91 cm is suggestive of

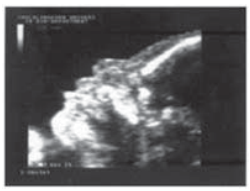


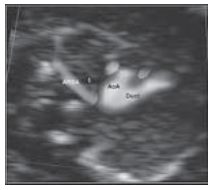
   a. Normal cistern magna
   b. Abnormal cistern magna
   c. Normal nuchal fold thickness
   d. Abnormal nuchal fold thickness

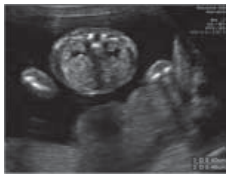
11. All of the following anomalies can be diagnosed on the scan at 11-13+6 weeks, except
   a. Agenesis of corpus callosum
   b. Holoprosencephaly
   c. Hypoplastic left heart
   d. Omphlocele

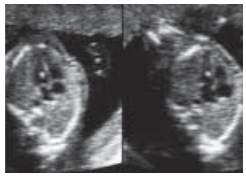
12. Quadruple test in triplet pregnancy for aneuploidy screening
    a. Performs better than triple test
    b. Performs better than dual test
    c. Not recommended
    d. Not validated

13. Which of the following second trimester soft tissue markers shown in the images increases the risk of Down's the most

a. 

b. 

c. 

d. 

14. A pregnant patient develops heart failure without an identifiable underlying cause. I she does not recover baseline cardiac function by 6 months postpartum, which of the following best approximates her 5-year mortality rate?
    a. 5% b. 20%
    c. 40% d. 80%

15. Which of the following pregnancy complications is reduced when antihypertensive therapy is started during pregnancy?
    a. Preterm delivery
    b. Maternal morbidity
    c. Development of severe hypertension
    d. Neonatal intensive care admissions

16. Women receiving therapeutic doses of low molecular-weight heparin should not receive neuraxial blockade (e.g., epidural anesthesia) or how long after the last dose was administered?
    a. 12 hours b. 24 hours
    c. 36 hours d. 48 hours

17. Which of the following viral infections has been associated with a marked increase in the risk or intrahepatic cholestasis of pregnancy?
    a. Hepatitis C b. Hepatitis B
    c. Cytomegalovirus
    d. Human immunodeficiency virus

18. Pregnancy physiology results in which of the following changes to factor VIII and von Willebrand factor (vWF) levels?
    a. Increased factor VIII and vWF levels
    b. Decreased factor VIII and vWF levels
    c. Increased factor VIII levels; decreased vWF factor levels
    d. Decreased factor VIII levels; increased vWF factor levels

19. During which of the following epochs in pregnancy is the peak incidence of maternal hypoglycemia noted?
    a. 10–14 weeks b. 20–24 weeks
    c. 28–32 weeks d. 34–38 weeks

20. Which systemic lupus erythematosus-specific antibody correlates with nephritis and vasculitis activity when seen in high titers?d
    a. Anti-Ro b. Anti-La
    c. Antinuclear d. Anti- double-stranded -DNA

Watsapp your answers to **9211656757.**
Names of first three correct entries will be mentioned in the next issue

Refer page 38 for previous answer key.

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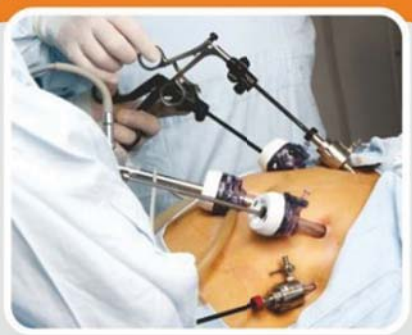

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