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HEARTBURN IN PREGNANCY

Moderators : Dr. Nandita Palshetkar, Dr. Pratima Mittal

Panel Members : Dr. Basab Mukherjee, Dr. Bhaskar Pal, Dr. Archana Verma, Dr. Achla Batra, Dr. Meenu Handa

Special member: Dr. Siva Prasad

From left to right: Dr. Basab Mukherjee, Dr. Meenu Handa, Dr. Archana Verma, Dr. Pratima Mittal, Dr. Achla Batra, Dr. Siva Prasad, Dr. Bhaskar Pal, Dr. Rekha Dadhich

Preface

Heartburn is common in pregnancy, and affects up to 80% of women in the third trimester. The causes of increase in heartburn in pregnancy is not well understood. However, the effect of hormones during on the lower oesophageal sphincter and gastric clearance may play a part in the increasing heartburn during pregnancy. Heartburn is more likely to be observed in older and in women having their second or subsequent pregnancies, independent of age.

Heartburn is unpleasant of burning or painful sensation around the sternum which may extend up into the throat. Discomfort is due to from a reflux of acidic gastric contents into the oesophagus. Since oesophagus has no protective lining to prevent the corrosive effects of gastric acids, the symptoms tend to be worse after eating and when lying down.

A number of interventions have been used to relieve symptoms, including advice on diet and lifestyle, and medication. Lifestyle strategies are intended to either reduce acid production, or avoid reflux associated with postural change. Gastro-oesophageal reflux disease during pregnancy should be managed with a step-up algorithm starting with lifestyle modifications and dietary changes. Antacids with alginate can be considered as the first-line drug therapy. If symptoms persist, any of the histamine2-receptor antagonists can be used. Proton pump inhibitors are reserved for women with intractable symptoms or complicated reflux disease.

Best wishes!

Dr. Jaideep Malhotra

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President 2018 - Federation of Obstetrics & Gynaecological Societies of India (FOGSI)

Heartburn is a retrosternal burning sensation caused by reflux of gastric contents into the oesophagus. It may be associated with regurgitation of stomach contents into the mouth. GERD is when the frequency and severity of the symptoms affect the quality of life.

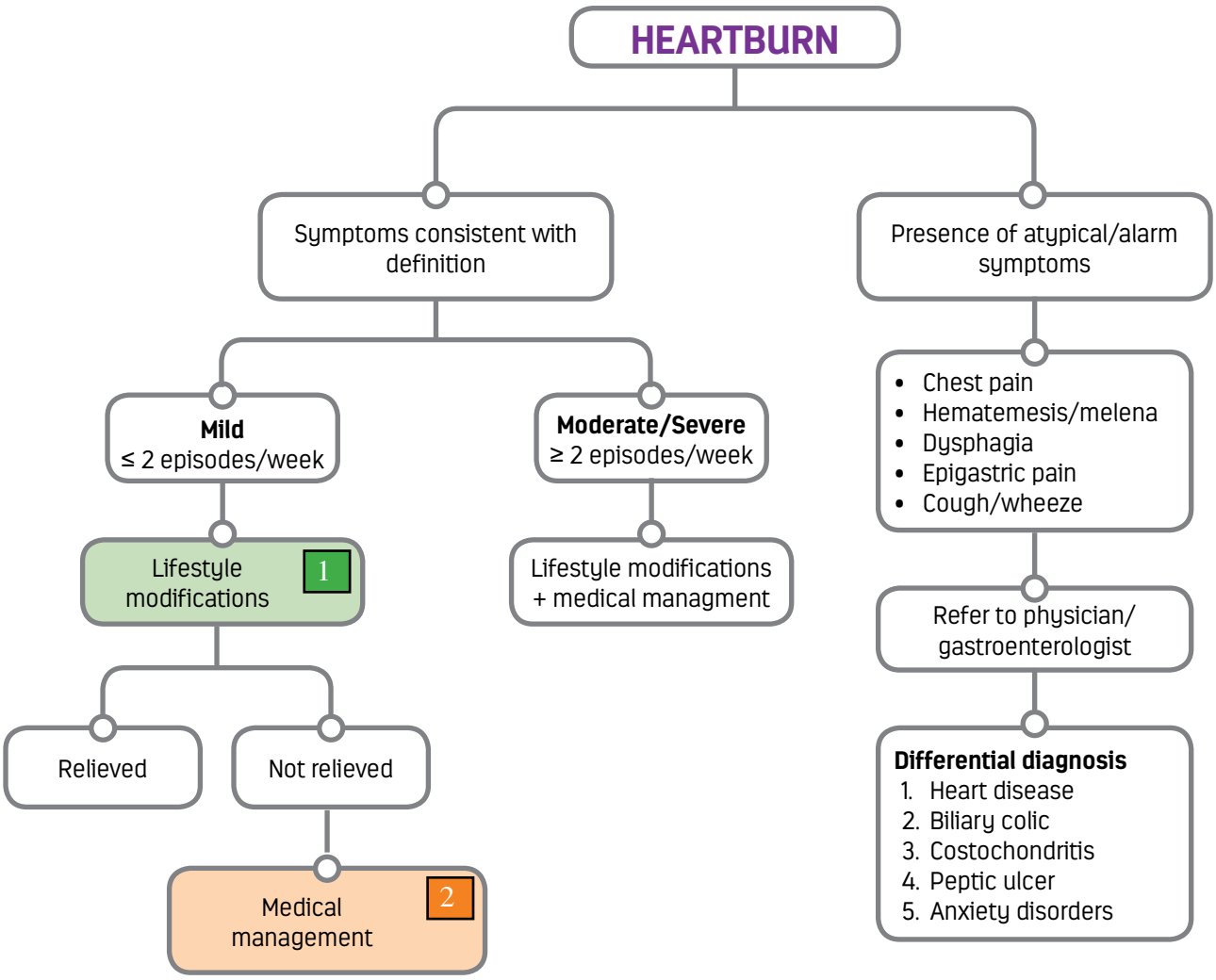
- ❑ Heart burn in pregnancy is common, with incidence varying between 30% to over 80%
    - First trimester: 22% women experience heartburn
    - Second trimester: 39% women experience heartburn
    - Third trimester: 72% women experience heartburn
- ❑ Prevalence is highest in the third trimester
- ❑ Postprandial reflux episodes achieved nadir pH values lower than the gastric body where acidity was buffered by the meal.
- ❑ Newly secreted acid layered on top of the ingested meal
- ❑ The proximal extent of this acidity extended close to or even proximal to the squamocolumnar junction (SCJ) in the postprandial period.
- ❑ This "acid pocket" represents an alternative mechanism of distal esophageal acid exposure and is a unique therapeutic target.

Risk factors for heartburn in pregnancy

- ❑ Gestational age
- ❑ Obesity
- ❑ Smoking
- ❑ Spicy food
- ❑ Beverages, e.g. caffeine
- ❑ Previous history of heartburn in non-pregnant state is a known risk factor

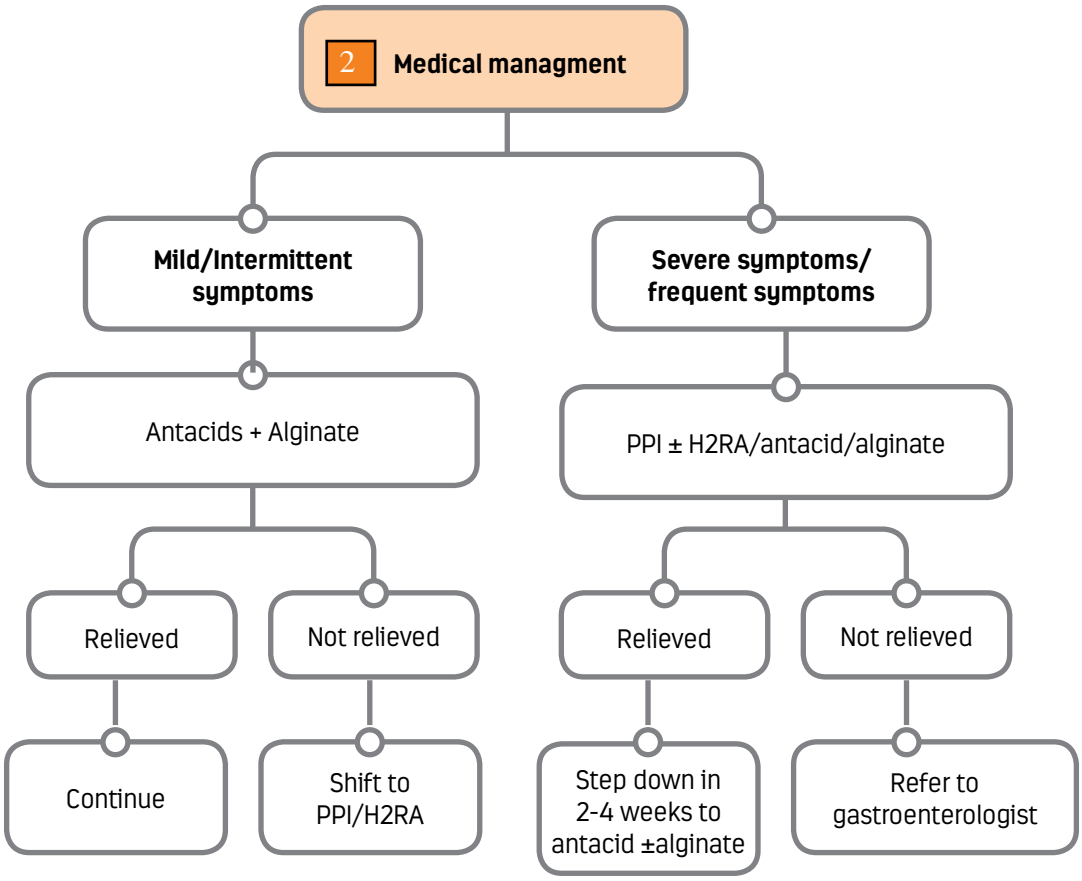
What patient experience if they have heartburn:

- ❑ A burning sensation or pain in the chest
- ❑ Feeling full, heavy or bloated
- ❑ Burping or belching
- ❑ Feeling or being sick
- ❑ Bringing up food



1 Lifestyle modifications

- ❑ Identify dietary triggers/precipitating factors and avoid them
- ❑ Elevation of head end of the bed:
  - Elevate the bed to right height, to about 6- 8 inches
  - Elevate not just head but torso also
  - Use blocks or bed risers to bed
  - Bed wedges between mattress and bed box
- ❑ Eating right:
  - Eat smaller and frequent meals
  - Eat more low-acidic foods- oat meal, fruits and vegetables (potato, melons, banana), lean meat and fish, egg white, fennel and ginger and aloe vera may be useful
  - Avoid fatty foods, carbonated beverages, caffeine, acidic foods (like tomatoes, citrus fruits and juices, spicy foods, mint) and spicy foods.
  - Avoid alcohol, chocolate, fatty or fried foods
  - Avoid eating 2 hours prior to sleep
- ❑ Mild exercises
  - Do regular mild exercises
  - Low intensity walking, swimming, yoga etc
- ❑ Consult the doctor



H2RA - Histamine 2 receptor antagonist
PPI - Proton pump inhibtor

2 Medical management

- ❑ Antacids (Aluminium-, calcium- or magnesium-containing antacids) + Alginate is more effective than an antacid alone in controlling post-prandial oesophageal acid exposure. The effectiveness relates to its co-localisation with and displacement/neutralisation of the post-prandial acid pocket, rather than preventing reflux.
- ❑ Avoid NaHCO3/magnesium trisilicate
- ❑ Avoid PPIs such as omeprazole (category C), and limited data is available on the use of other PPIs during pregnancy
- ❑ Any antacid having high quality of sodium bicarbonate should be used with caution if needed for long periods of time and in higher doses
- ❑ Most antacids + alginate are safe during lactation
- ❑ H2RA and PPI are secreted in breast milk and there is no data available regarding use of PPIs such as lansoprazole, rabeprazole or esomeprazole during breastfeeding.

2 Medical management

Dosage

1. Antacid:

- Antacid + Alginate
  10 ml to 20 ml SOS up to 4 times a day
  After food and before bed time

2. H2RA

- Tablet Ranitidine 150mg bid

3. PPI

- Tablet Rabeprazole 20 mg OD (1/2 hour before food)
- Tablet Esomeprazole 40 mg OD (1/2 hour before food)
- Tablet Pantoprazole 40 mg OD (1/2 hour before food)
- Tablet Lansoprazole 30 mg OD (1/2 hour before food)

5. Nocturnal heartburn

- Alginate 10 to 20 ml before sleep
- Combination of antacid and alginate to be given along with PPI or H2RA
- To prevent breakthrough symptoms in patients receiving PPI/H2RA, adjuvant therapy of antacid + alginate is given.
- PPIs are taken once daily ½ hour before food in the morning, the onset of action is between 16 – 18 hours. Hence, there is no protection during sleep, during which antacid-alginate combination taken before bed time provides night-time protection.

HYGIENE IN PREGNANCY

Moderators : Dr. Rishma Dhillon Pai, Dr. MC Patel

Panel Members : Dr. T Vindha, Dr. Kamini Patel, Dr. Sarita Bhalerao, Dr. Rekha Dadhich, Dr. Shikha Seth

Special member: Dr. Santhosh Soans

From left to right: Dr. Shikha Seth, Dr. Sarita Balerao, Dr. T. Vindya, Dr. MC Patel, Dr. Santosh Soans, Dr. Rishma Dhillon Pai, Dr. Kamini Patel, Dr. Rekha Dadhich

Preface

Pregnancy is an exciting time wherein a woman's body goes through remarkable changes. During pregnancy, the hormonal changes occurring can lead to increased perspiration, vaginal discharge, dry and scaly skin, acne and engorgement of breasts, which can make a woman feel uncomfortable as her body prepares for the baby's birth. Therefore, maintaining good hygiene during pregnancy can help prevent infections, reduce the danger to the mother as well as the unborn baby, and make the mother feel comfortable and refreshed.

A pregnant woman is generally suggested to take a cool shower daily because the thermogenic pregnancy hormone, progesterone, increases body temperature. Bathing early in pregnancy may help women relax and help deal with insomnia.

It is also necessary to maintain a good dental health in pregnant women, since pregnancy hormones may cause changes in the saliva production and encourage growth of harmful bacteria that can lead to gum disease and tooth decay.

Breast hygiene is also an important component during pregnancy; regular washing of breasts and keeping it dry is essential to prevent infections and irritation.

Hair and skin care regimen should be followed frequently during pregnancy due to active oil glands, which may cause outbreak of acne and increase hair growth.

Choosing fabrics that are easy to wear, soft and comfortable throughout the pregnancy period is important. It is suggested to avoid staying in sweaty clothes for long or wearing clothes that are too tight.

Improper hygiene may put the baby, who is more vulnerable and weak, at an increased risk of developing infections or may result in severe health problems. Chronic exposure to toxins and other harmful agents during pregnancy could also lead to certain malformations in the baby.

FOGSI presents a detailed discussion on importance and tips on maintaining hygiene during pregnancy, and details the procedures on hand hygiene on a personal front as well as in the hospital setting. A brief matter is also dedicated towards discussion on newborn hygiene and oral hygiene in the neonates.

Best wishes!

Dr. Jaideep Malhotra

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President 2018 - Federation of Obstetrics & Gynaecological Societies of India (FOGSI)

"Hygiene refers to conditions and practices that help to maintain health and prevent the spread of diseases." (WHO)

Personal hygiene refers to maintaining the body's cleanliness

Personal hygiene is a public health tool which is important for disease prevention and promoting health in individuals, families and communities. Good personal hygiene can help in preventing diseases, and injuries, which now forms a part of the primary health prevention strategy.[1]

Semmelweis first demonstrated that handwashing could save lives

Since centuries, hand washing with soap and water has been considered as a basic measure of personal hygiene. Ignaz Semmelweis in the mid-1800s established that hospital-acquired diseases were transmitted through the hands of health care workers. Maternal mortality rates were observed to be higher in the clinics where doctors directly entered the delivery suite after performing autopsies. Despite hand washing with soap and water, their hands had a disagreeable odour. Therefore, Semmelweis recommended that chlorinated lime solution should be used to scrub the hands before contact with every patient and particularly after leaving the autopsy room. After following this procedure, the mortality rate fell dramatically from 16% to 3% and remained low thereafter.[2]

Barriers for hand hygiene

Barriers encountered for hand washing

- ❑ Lack of soap, paper towel
- ❑ Wearing of gloves/beliefs that use of glove obviates the need for hand hygiene
- ❑ Sinks are inconveniently located/shortage of sinks and lack of washrooms
- ❑ Not thinking about it/forgetfulness
- ❑ Handwashing agents cause irritations and dryness

The main factors that determine poor hand hygiene include risk factors for non-adherence, as well as reasons given by healthcare workers for lack of adherence to hand hygiene recommendations.[2]

Pathogens involved in contaminating the hands

Microorganisms can survive on hands for differing time periods (around 2–60 minutes) after contact with patients or a contaminated environment. Absence of hand hygiene may lead to higher degree of hand contamination and may allow the transfer of microbes.[2]

Deadliest pathogens that may contaminate the hands

- ❑ Methicillin-resistant *Staphylococcus aureus*
- ❑ Klebsiella
- ❑ Pseudomonas
- ❑ Vancomycin-resistant enterococcus
- ❑ *Clostridium difficile*

Complications of poor hand hygiene

Hand hygiene is the primary measure proven to be effective in preventing infections and the spread of antimicrobial resistance.[2]

Poor hand hygiene can cause

- ❑ Abortions
- ❑ Bacterial vaginosis
- ❑ Preterm labour and low birth weight babies
- ❑ Fetal/maternal infections, such as pediatric sepsis and pyrexia, and cord infections
- ❑ Worm infestations
- ❑ Diarrhoea and respiratory diseases
- ❑ Poor school attendance
- ❑ Long term complications such as stunted growth and poor cognitive score

References

1. Sudan J Paediatr. 2013; 13(1):38-42.
2. WHO Guidelines on Hand Hygiene in Health Care: First Global Patient Safety Challenge Clean Care Is Safer Care. 2009.

Pregnancy: A 'teachable moment' for hand hygiene

Pregnancy has been identified as a teachable moment that promotes handwashing. During pregnancy, a woman is willing to adopt new behaviors so that health-related risks can be minimized to both, the mother and child. New motherhood can be a continuous teachable moment due to the innate concern the mother has for the wellbeing of her baby.

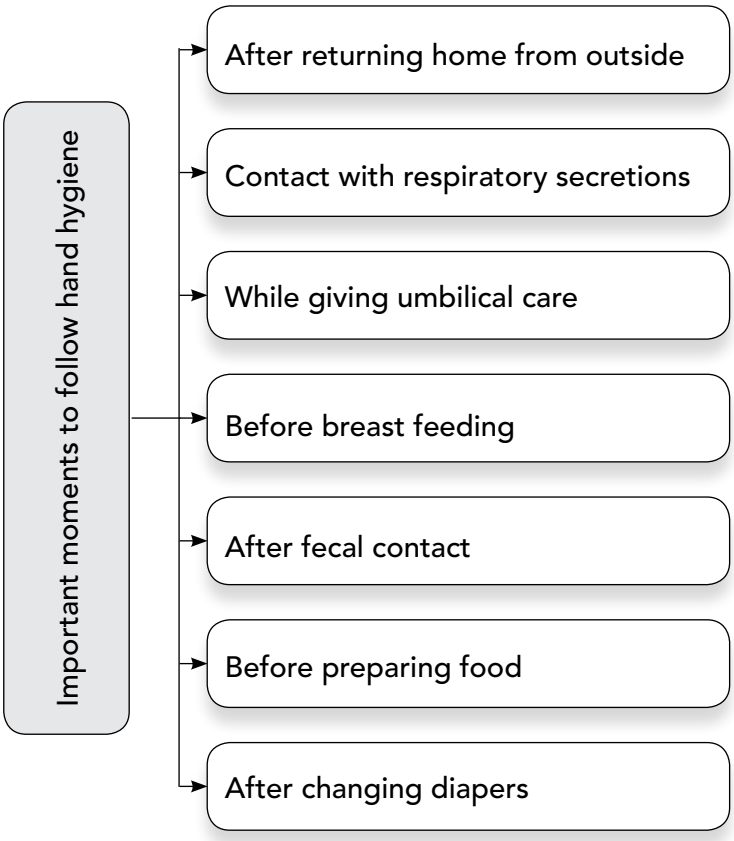
Handwashing has been focused as a behavior change intervention. Advantages of handwashing during pregnancy:

1. A mother's hygiene behavior has a direct impact on the childs health; therefore, early adoption of better hygiene practices can reduce morbidity and mortality

2. Important life-skills can be learnt from the mother early

3. Introducing handwashing early can have an impact on neonatal survival by reducing sepsis and tetanus

Key moments for following hand hygiene in mothers



Reference

1. BMC Public Health. 2013; 13:830.

Procedure to follow a proper hand hygiene regimen

1. Use of a correct product including a soap and water. Alcohol based rubs such as chloroxylenol hand rub can be used.

2. Using a correct concentration of solution is important; 60-75% w/v

3. Use an adequate amount of around 3-5ml of the solution for handwashing

4. Handwashing should be performed for about 60 to 90 seconds

5. Proper steps and movements of washing should be performed for effective results

Reference

1. BMC Public Health. 2013; 13:830.

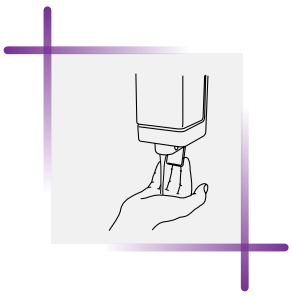
Hand washing technique

Soap and water (preferred)

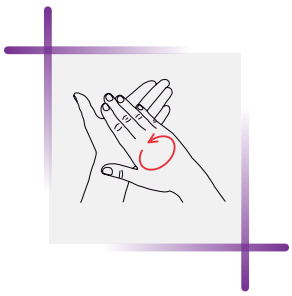
1. Wet the hands first with normal water (avoid hot water due to the risk of dermatitis)
2. Soap/liquid soap, medicated/non medicated, 3-5ml, cover all surfaces
3. Rinse with clean running water (preferred)
4. Use sun dried towel. No interchanges, disposable preferred if available
5. Take 60-90 seconds to complete the wash for maximum effect

1. Wet
2. Soap
3. Scrub
4. Rinse
5. Dry

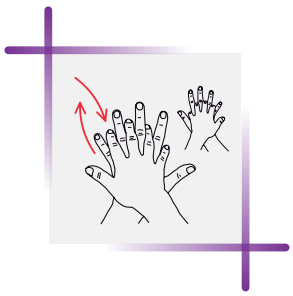
Wet hands with water



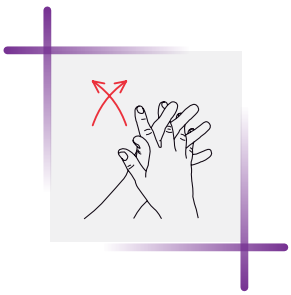
Apply enough soap to cover all hand surfaces



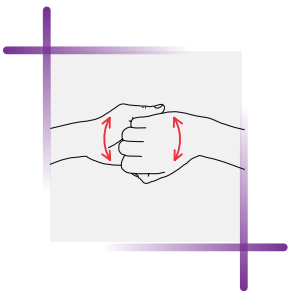
Rub hand palm to palm



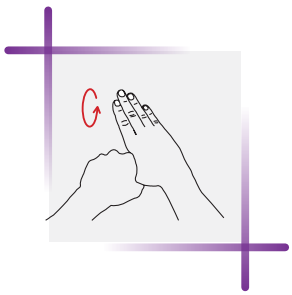
Rub back of each hand with palm of other hand with fingers interlaced



Rub palm to palm with fingers interlaced



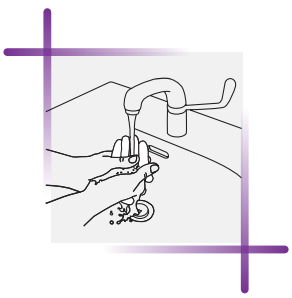
Rub with back of fingers to opposing palms with fingers interlocked



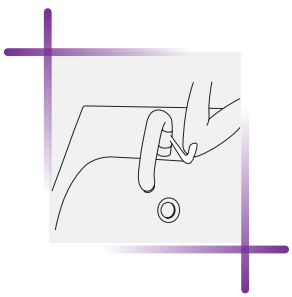
Rub each thumb clasped in opposite hand using a rotational movement

Rub tips of fingers in opposite palm in a circular motion

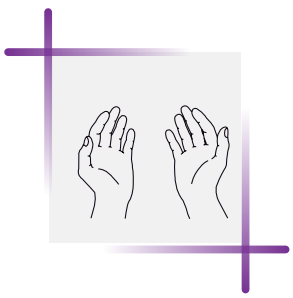
Rub each wrist with opposite hand



Rinse hands with water



Use elbow to turn off tap



Dry thoroughly with a single-use towel

Hand washing technique

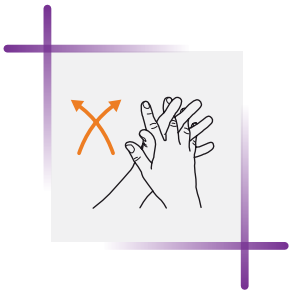
Alcohol based rubs

1. Apply a palmful (3-5 ml) of rub on apparently clean and dry hands
2. Don't use on visibly dirty or wet hands
3. Cover all surfaces thumb and fingers
4. Rub hands till it dries

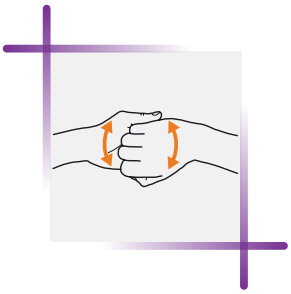
Apply a small amount (about 3ml) of the product in a cupped hand

Rub hands together palm to palm spreading the handrub over the hands

Rub back of each hand with palm of other hand with interfaced fingers



Rub back of fingers to opposing palms with fingers interlocked



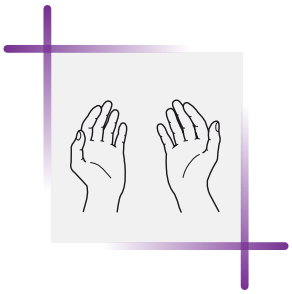
Rub each thumb clasped in opposite hand using a rotational movement

"WASH" an UNICEF campaign

- WATER
- SANITATION
- HYGIENE
  - » General
  - » Perineal
  - » Oral
  - » Hair
  - » Hands and Feet
  - » Toileting
  - » Home and Habits

Rub tips of fingers in opposite palmin a circular motion

Rub each wrist in opposite hand



Wait until product has evaporated and hands are dry (do not use paper towel)

Good hygiene practices

Intimate hygiene

In pregnant women, protection against Group B Streptococcus is essential, since it often colonizes the vagina through the gastrointestinal tract and increases the risk of neonatal meningitis, preterm delivery, and may even cause fetal death. Asymptomatic bacteriuria, urinary tract infections, upper genital tract infections, and postpartum endometritis may also occur.[1]

Recommendations for female genital hygiene:

- ❑ Care should be taken to avoid contact with irritants
- ❑ Use a hypoallergenic liquid wash with mild detergency and pH of 4.2 to 5.6
- ❑ Avoid bar soaps and bubble baths, which are abrasive and have a more alkaline pH
- ❑ Loose-fitting cotton underwear is preferred
- ❑ Minimize wearing tight clothes
- ❑ Postpartum care should include frequent cleansing, drying, and using pads as necessary. Maintain dryness over any sutures
- ❑ Avoid use of any creams

Breast hygiene

Breast tenderness is common during the first 4 days after delivery. Infections and breast tenderness can be prevented with breast feeding on demand and maintaining proper hygiene.[2]

Maintaining proper breast hygiene is essential for breastfeeding mothers. Breast hygiene practices include:

- ❑ Areola and nipples should be cleaned before the feed
- ❑ It is necessary to wash the breasts lightly with water
- ❑ Avoid creams on crack or dry area
- ❑ Plus size soft cotton maternity bra or sports bra is preferred
- ❑ Changing the breast pads is recommended, if worn to soak up leaking breast milk
- ❑ It is essential to change the nursing bra twice in hot humid weather, so that growth of bacteria or yeast can be avoided. It should be changed even when wet or soiled.
- ❑ The garments should be washed in antiseptic solution

Other general hygiene practices during pregnancy

General hygiene practices include:

- ❑ Baby should be breastfed before the mother starts to exercise
- ❑ It is necessary to take a shower or bath every day
- ❑ Add antiseptic solution, 1 teaspoon full in bucketful during a bath
- ❑ Clipping of nails regularly is essential
- ❑ Washing hands at key moments and in special conditions should be followed, as the genitals or orofacial lesions, or during febrile illness, rashes, cough, and cold
- ❑ Cover the mouth and nose at the time of coughing and sneezing
- ❑ Avoid exposure with the diseased person

1. Womens Health (Lond). 2017; 13(3):58-67.
2. Safe Mother. 1997; (24):4-8.

Newborn hygiene

Hygiene and cleanliness is very important for a baby. Appropriate hygiene in newborns should be performed to prevent infections, and also for aesthetic and cleansing purposes. Skin care should involve cleansing with a non-toxic, non-abrasive and neutral material.

- ❑ Bathe the baby daily
- ❑ Clean the baby's clothes regularly in antiseptic solution and sun dry the clothes
- ❑ Cord care should be done with clean hands and apply antiseptic lotion
- ❑ Diapers should be changed for minimum 3 times/day

Oral hygiene in neonates

The oral cavity is the first line of defence against the entrance of pathogens, especially if a newborn is admitted in Neonatal Intensive Care Units (NICU). Oropharynx colonization plays a very important role as a reservoir for nosocomial colonization.*

- ❑ Wipe gums with clean, soft cloth after each feeding
- ❑ Avoid bottle
- ❑ Avoid saliva sharing behaviors
  - Kissing baby on mouth
  - Sharing spoon when tasting food
  - Cleaning the dropped pacifier
  - Avoid sharing straws and cups

Perineal hygiene

Unsatisfactory perineal hygiene is the main predisposing factor for the condition involving opportunistic microrganisms found in the perineal commensal microbiota. The impact of perineal hygiene on the type of practice.**

- ❑ Wash hands properly before touching the perineal area
- ❑ Cleanse perineum front to back
- ❑ Clean after each act of evacuation
- ❑ Immediately dry up with soft towel
- ❑ Don't rub or heat it
- ❑ Use peri-pad & change 4 times/day
- ❑ Apply antiseptic on Episiotomy
- ❑ Ice for 10 minutes 4-5 times/day
- ❑ Sitz bath (hip bath) twice daily for speedy healing

*Journal of Maternal-Fetal & Neonatal Medicine
**Antimicrobial Resistance and Infection Control

Oral hygiene

A hospital is a good setting for communication to patient about personal hygiene, such as informing visitors and the general public about hygiene rules such as washing hands and oral hygiene.

The dental management of pregnant patients requires special attention. Applying the basics of preventive dentistry at the primary level will broaden the scope of the prenatal care.

Patients should be counselled to perform routine brushing and flossing, to avoid excessive amounts of sugary snacks and drinks, and to consult a dentist. Status of and plans for oral health should be documented.

- ❑ Don't defer dental treatment during pregnancy
  - In early pregnancy, the woman should be screened for oral risks, counselled on proper oral hygiene, and referred for dental treatment when required*
- ❑ One visit to dentist is a must during early pregnancy
- ❑ Dental X ray can be done in pregnancy if required, but interventions are preferred to be carried out during the second trimester
  - Dental radiation exposure of the foetus is negligible
  - Avoid routine radiographs. Use selectively and when they are needed *
  - Diagnostic radiography, periodontal treatment, restorations, and extractions are safe and are best performed during the second trimester**
- ❑ Fluoridation of water should be 0.7 ppm, and should be checked if possible
- ❑ Brush twice daily preferably after meals
  - Inner and outer surfaces /360 degree
  - Up/ down or circular movements
  - Floss in between the teeth
- ❑ Rinse mouth thoroughly after eating
- ❑ Avoid junk, sticky, sugary food
- ❑ Change brush regularly after 3-4 months
- ❑ Don't exchange brushes/food
- ❑ Use chlorhexidine, non-alcoholic mouth wash during bed time and avoid eating later
  - Chlorhexidine may also be used as an adjuvant therapy for high-risk mothers in the early postpartum period to reduce transmission of cariogenic bacteria to their infants*
  - Appropriate dental care and prevention during pregnancy may reduce poor prenatal outcomes and decrease infant caries*

* American Family Physician

** Journal of Clinical and Diagnostic Research

Commonly used antiseptics

Alcohol based rubs

- ❑ Chloroxylenol
- ❑ Alcohol preparations
- ❑ Chlorhexidine
- ❑ Cetrimide
- ❑ Halogenated phenols
- ❑ Hydrogen peroxide
- ❑ Sodium Hypochlorite
- ❑ Tincture iodine, povidone
- ❑ Triclosan

Antibacterial activity of widely used antiseptics

A study was conducted to ascertain the activity of a selection of widely-used antiseptic/ disinfectant agents against antibiotic resistant bacteria and strains isolated from patients infected with clinically significant species.*

- ❑ Antiseptics which gave microbial effect (ME) values of >5 were considered to have passed the test and to have acceptable antibacterial activity.
- ❑ Dettol was more effective against the antibiotic resistant strain of *S. aureus* (MRSA) at 0.25χ, whereas betadine demonstrated negligible activity at the lowest dilution and failed at half strength. Betadine was effective against the antibiotic sensitive strains.
- ❑ No difference was observed in the activity between the antiseptics at recommended concentrations against pathogenic or antibiotic resistant strains.
- ❑ Some micro-organisms have been reported to develop resistance to few antiseptics such as chlorhexidine, quaternary ammonium compounds, iodine and heavy metals.
- ❑ No resistance has been reported to PCMX, perhaps, due to the multiple target sites for the action of the antiseptic.
- ❑ Table 1 shows mME values for four antiseptics at three concentrations.

* J Roy Soc Health. 1998; 118 (1):18-22

Table 1. Antibacterial activity, expressed as mME, for four antiseptics at three dilutions, against test bacteria*					
		Median ME value			
Organism	**Concn.[a]**	**Dettol**	**Dettol HC**	**Savlon**	**Betadine**
S. aureus	χ 0.5 χ 0.25 χ	>5.5 5.5 3.8	5.4 6.0 5.4	>5.7 6.4 5.9	5.7 4.3 4.3
MRSA[b]	χ 0.5 χ 0.25 χ	>5.7 >5.7 >5.6	>5.7 >5.6 >5.6	>5.7 >5.7 >5.7	5.1 4.3 0.4
E birae	χ 0.5 χ 0.25 χ	>6.0 >6.0 4.9	>6.0 5.6 >6.0	>5.5 >6.2 5.1	5.4 ›6.0 ›6.0
VRE[c]	χ 0.5 χ 0.25 χ	>5.7 >5.7 >5.7	>5.7 >5.7 >5.7	>5.7 >5.7 >5.7	>5.7 >5.7 4.8
E. coli Atcc10536	χ 0.5 χ 0.25 χ	>5.1 6.0 6.0	>6.1 >5.9 >5.9	>5.5 5.7 4.4	>6.0 >6.1 >6.1
E. coli 0157	χ 0.5 χ 0.25 χ	>6.0 >6.0 >6.0	>6.0 >6.0 >6.0	>6.0 >6.0 >6.0	>6.0 >6.0 4.8

[a]Concentration of antiseptic; [b]MRSA: methicillin resistant *S. aureus;* [c]VRE: vancomycin resistant Enterococus sp.; mME: median microbial effect

Concentration of antiseptics used in Table 1				
Concentration code	**Dettol**	**Dettol Hospital concentrate**	**Savlon**	**Betadine**
χ	5% v/v	1% v/v	5% v/v	80% v/v
0.5 χ	2.5% v/v	0.5% v/v	2.5% v/v	40% v/v
0.25 χ	1.25% v/v	0.25% v/v	1.25% v/v	20% v/v

χ: Recommended use concentration

Concentration differs for different indications as wounds, surface cleaning, bathing, and washing

- ❑ Antisepsis in obstetrics and midwifery (1 part in 40)
- ❑ Used in first aid, for cuts and wounds (1 part in 20)
- ❑ Also used for bites and insect stings (1 part in 20)
- ❑ Bathing and irrigation of abscesses and boils (1 part in 20)
- ❑ General disinfection of wards, hands, masks, linen etc. (1 part in 20)
- ❑ Epidemics: Disinfection of linen, floor, and for spraying rooms (1 part in 40)

- Available in form of liquids, sanitizers, soaps, and mouth wash
- pH balanced liquid products should be preferred

Hospital settings: Maternity wards and NICU

The focus of infection control measures to the delivery rooms and maternity wards ushers an era of controlling infectious outbreaks. This has also strengthened the recommendation that the quality of hygiene in delivery rooms needs to be as high as in surgery rooms. Effectively preventing and controlling hospital acquired infection requires a collaborative approach compelling all healthcare staff to take up responsibilities and be involved.*

Good practices

- ❑ Avoid rings, bracelets, nail polish, watches, and long sleeved coats in Hospital/NICU
- ❑ Wear clean gown in NICU and labour units
- ❑ Always wear mask and cap
- ❑ Surfaces and floors be cleaned immediately with cleansing agents with phenol derivatives
- ❑ Restricted entry and exit be maintained

Washing and scrubbing of hands

The costs of hospital acquired infection transmitted by contaminated gloves and hands can be colossal for the patient. This can literally be a matter of life and death, can be costly to the hospital and as a whole as it increases morbidity and mortality. Clinical evidences that have documented the cost-effectiveness of simple preventive strategies such as health workers' proper washing and scrubbing of hands to prevent and control nosocomial infections.**

Proper hand wash is required:

- ❑ Before touching a patient
- ❑ After touching a patient
- ❑ After touching body fluids, patient surrounding and handling
- ❑ Changing nappies and diapers
- ❑ Fetal excreta disposals
- ❑ Back home from hospital

Health care workers as well as family members should follow hand hygiene.

* Infection Control and Hospital Epidemiology, British Journal of Nursing.
** African Health Sciences

HYPEREMESIS GRAVIDARUM

Moderators : Dr. Jaideep Malhotra, Dr. Jayam Kannan

Panel Members : Dr. Sudhir Shah, Dr. Dipak Bhagde, Dr. Anurita Singh, Dr. Niranjan Chavan, Dr. Anupama Bahadur

From left to right: Dr. Niranjan Chavan, Dr. Sudhir Shah, Dr. Jayam Kannan, Dr. Jaideep Malhotra, Dr. Anurita Singh, Dr. Dipak Bhagde

Preface

Hyperemesis gravidarum (HG) is a complex condition with a multifactorial etiology that is characterized by severe intractable nausea and vomiting. About 80% of all pregnant women experience some form of nausea and vomiting during pregnancy. It has been shown that HG affects about 0.3%–2.0% of all pregnancies, and is the commonest indication for admission to hospital in the first half of pregnancy and is second only to preterm labor as a cause of hospitalization during pregnancy. The diagnosis of HG is by exclusion, characterized by prolonged and severe nausea and vomiting, dehydration, large ketonuria, and more than 5% body weight loss.

It is associated with an increased risk for adverse pregnancy outcomes such as low birth weight, preterm birth, and small-for-gestational age infants. Women with HG may have higher levels of pregnancy-associated plasma protein A (PAPP-A) and free human chorionic gonadotropin (hCG) in the first trimester compared with non HG women, when HG symptoms are often at their worst. The symptoms of HG are more severe in multiple pregnancies and molar pregnancies, conditions associated with excessively high hCG levels.

HG can be extremely debilitating for women and, if inadequately managed, can cause significant morbidities, including malnutrition and electrolyte imbalances, thrombosis, Wernicke's encephalopathy, depressive illness, and poor pregnancy outcomes such as prematurity and small-for-gestational-age fetuses. Women with HG were more likely to suffer from hematemesis, dizziness, fainting, and antiemetic treatment. They also have an increased risk for placental disorders (placental abruption), especially in women presenting with HG in the second trimester.

Post pregnancy, these women may develop posttraumatic stress disorder, motion sickness, and muscle weakness and to have infants may experiene colic, irritability, and growth restriction. Autoimmune disorder can also be significantly increased in women with

Hence, it is important to make early assessment of nausea and vomiting in pregnancy to prevent delay in diagnosis and management of HG. In these patient underlying complications associated with persistent vomiting, such as gastrointestinal conditions, pyelonephritis, and metabolic disorders should also be determined. These guidelines provide comprehensive evidence based assessment and management of women with HG.

Best wishes!

Dr. Jaideep Malhotra

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President 2018 - Federation of Obstetrics & Gynaecological Societies of India (FOGSI)

This guideline is developed in accordance with standard methodology for producing Federation of obstetricians and gynaecologists (FOGSI) 2018 at TOG 3rd Conclave.

Database include —

1. The Green-top guidelines No. 69 June 2016
2. ACOG Practice Bulletin Summary no 189 January 2018
3. Clinical Practice guideline Royal College of Physician Ireland –version 12
4. South Australia Prenatal Practice guideline
5. Cochrane Review 2010 along with Articles in Press of Chinese Medical Association and Management of Nausea & Vomiting in Pregnancy in a primary care setting.

Definition

Hyperemesis Gravedram (HG) is defined as the severe (protracted)form of nausea, vomiting in pregnancy (NVP), with the triad of more than 5% weight loss from prepregnancy level, dehydration, and electrolyte imbalance.

Incidence

Varies from 0.3% to 3.6% of pregnancies, of which <1% requires hospitalisation

Risk factors

- ❑ Young pregnancy
- ❑ Multiple pregnancy
- ❑ Increased BMI
- ❑ Urinary tract infections
- ❑ Gastrointestinal disorders
- ❑ *H. pylori* infection
- ❑ Anxious, highly stressed
- ❑ Migraine
- ❑ ENT problems
- ❑ Known case of heartburn
- ❑ Diabetic
- ❑ With family history of HG in mother
- ❑ History of HG in first pregnancy

Features in history – Clinical examination and investigation

- ❑ Quantify the severity using PUQE scores and modified PUQE scores
- ❑ Nausea, hypersectretion
- ❑ Retching, vomiting
- ❑ Loss of weight, inability to tolerate food and fluids,

- ❑ Effect on quality of life
- ❑ History of pain
- ❑ Abdominal urinary symptoms
- ❑ Drug history
- ❑ Chronic *H. pylori* infection

Examination includes:

- ❑ Assessment of general condition
- ❑ Vitals, dehydration
- ❑ Abdomen and other as guided by history

Investigation

- ❑ Ward urine analysis
- ❑ Micro urine and culture
- ❑ Blood for urea
- ❑ Electrolysis and serum creatinine
- ❑ Blood sugar
- ❑ Liver function test (LFT)
- ❑ Thyroid stimulating hormone (TSH) &T4
- ❑ Obstetric USG to confirm ongoing pregnancy and exclude other
- ❑ Other tests depending on the other diagnosis warrants inclusive of ABG

Differential diagnosis

- ❑ **Gastrointestinal tract problems**
- ❑ **Genitourinary tract problems**
- ❑ **Central nervous system (CNS)**
- ❑ **Metabolic syndromes**
- ❑ **Drug induced vomiting**
- ❑ **Infective pathologies**

Management

Ambulatory care is considered for PUQE less than 13, ideal for ≤ 6, may be for 7-12.

IP management is to be considered for –

i. HG unable to keep down with oral antiemetic
ii. HG with ketonuria, weight loss above 5%
iii. Comorbid condition that require admission when patient is on ambulatory care she need to stop all drugs except Doxylamine or any other antiemetic (H1 receptors) and Phenothiazinesprescribed along with folic acid. Need to avoid trigger for HG, lifestyle adaptation with dietary care such as small frequent feeds and ginger. Should avoid fatty food, solids and liquids together. Rather she can eat what she wants. The drugs can preferably be given parenteral initially then shifted to oral route.

On hospitalization

- Need to create life-line with 18G needle
- Parenteral fluid with normal saline + potassium chloride to be followed with appropriate fluid based on electrolyte levels.
- Vomiting to be controlled with antiemetic ondansetron– gradually reduce and shift to doxylamine.
- Injection thiamine 100 mg in 1 ml when vomiting is prolonged.
- Unresolved cases can be considered for glucocorticoids
- Thrombo prophylaxis: can be used temporarily in refractory cases during dehydration management be discontinued once the HG is controlled.
- Clinician should use the antiemetic with which they are familiar and should use drugs from different classes, if the first drug is not effective.

Cochrane review 2010

1. H3 receptors: Promethazine, cyclizine, cinnarizine, doxylamine, and dimenhydrinate
2. Phenothiazines: Prochlorperazine, chlorpromazine and perphenolzine
3. Dopamine antagonist: Metoclopramide and domperidone

Complications

Maternal complications

Are mostly due to –

- Extreme electrolyte imbalance
- Drug induced extrapyramidal symptoms
- Oculogyric crisis
- Wernicke encephalopathy
- Excessive addition of sodium

Fetal complications

- Fetal loss
- IUGR
- All problems of maternal malnutrition

Key recommendation

- HG to be diagnosed and treated appropriately to avoid morbidities
- HG is diagnosed by exclusion
- Modified 24 hour PUQE is also required for heartburn plan
- Need antiemetics like doxylamine, promethazine, prochlorperazine and cyclizine
- Patients with known heartburn antireflux to begin sodium alginate with soda bicarbonate
- Hydration and electrolyte management is to be done with Intensivists monitoring and care
- Dietician consultation recommended
- Practical tips to cope up with NVP required
- Use of ginger traditionally done in India needs large study.

THALASSEMIA

Moderators : Dr. Shanta Kumari, Dr. Lila Vyas

Panel Members : Dr. Raju Sahetya, Dr. Renu Makwana, Dr. Vimee Bindra, Dr. Amitha Indersen, Dr. Saurabh Dani, Dr. Vivek Krishnan, Dr. Hema Purandarey

From left to right: Dr. Saurabh Dani, Dr. Hema Purandarey, Dr. Shanta Kumari, Dr. Renu Makwana, Dr. Lila Vyas, Dr. Vimee Bindra, Dr. Raju Sahetya, Dr. Vivek Krishnan, Dr. Amitha Indersen

Preface

Thalassemia is a rare congenital blood disorder having long-term or lifetime implications on the patients and their families. This heterogeneous group of hemoglobin production disorders which is characterized by a decreased or absent production of one or more globin chains that make up a hemoglobin molecule. It is broadly categorized according to the defective globin chains (α or β) such as α-thalassemia and β-thalassemia. The disorder is primarily found in the Mediterranean, Asian, Indian, and Middle Eastern regions which account for around 95% of all thalassemia births globally.

Caring for thalassemia patients is a life-long commitment that encompasses all aspects of care from birth to end of life. These patients may benefit from a comprehensive care approach to management which includes a multi-disciplinary team approach which focuses on diagnosis, genetic counselling, medical management, primary prevention of complications, and psychosocial support throughout life.

Patients with thalassemia are usually diagnosed between the ages of two and six years, and although may survive without regular blood transfusions, but are at a risk of impaired growth and development. Some patients may also be asymptomatic until adulthood, but may present with mild anaemia and splenomegaly and may be diagnosed during routine hematological examinations. Various countries have introduced a population-based genetic screening approach prior to conception of healthy couples at risk of having an affected offspring.

It is necessary to maintain a satisfactory hemoglobin level at the time of diagnosis without the need for regular blood transfusions. Blood transfusion and iron chelation therapy are the cornerstones of modern treatment in β-thalassemia. Improved transfusion techniques and effective chelation protocols have improved the quality of life and survival of individuals with thalassemia.

With thorough review of literature and profound experience in clinical practice, a panel of specialists in association with FOGSI have thrown light on thalassemia, and guided through its burden, the importance of screening, diagnosis, maintaining hand hygiene to prevent the spread of infections, dealing with heartburn and regurgitation, and other effective management approaches.

Best wishes!

Dr. Jaideep Malhotra

MD, FICMCH, FICOG, FICS, FRCOG, FRCPI, FMAS
President 2018 - Federation of Obstetrics & Gynaecological Societies of India (FOGSI)

Burden of thalassemia in India*

Estimates indicate around 100,000 patients with a β-thalassemia syndrome and around 150,000 cases of sickle cell disease in India. Very few of the 10,000 to 12,000 thalassemic children born annually in India are optimally managed. The burden of blood transfusion is 2 million units of packed red cells in the country.

Around 50% of the patients die painful deaths before 25 years of age. India spends more than 15,000 crore each year for the treatment of thalassemia.

Creating awareness: The key to a successful control programme*

The National Health Portal of the Ministry of Health and Family Welfare, Govt. of India now provides information on thalassemia for the public and professionals. Although there is no formal education on thalassemia in the curriculum for high school children, intense education on thalassemia from the secondary school level coupled with education of health professionals has been responsible for the success of prevention programmes. A short clip on β thalassemia if shown over a period of time through mass media can have a significant impact on the population at large.

Screening strategies for thalassemia

Targeted screening in high-risk ethnic groups

Sindhis, Kutchi Bhanushalis, Lohanas, Punjabi Khatris and Aroras, Bengalees, some Muslim groups and some tribal populations from Orissa and Gujarat

Ideally all reproductive age group women should be screened due to burden on resources is very high

Pre and post-test counselling particularly for prenatal diagnosis

To identify the maximum number of β thalassemia heterozygotes:

- CBC during the first antenatal visit of every pregnant woman with correct interpretation
- Estimation of HbA2 and HbF in every individual with reduced MCH and MCV values and a relatively high RBC count

Prenatal diagnosis to be done in the first trimester of pregnancy (10–12 weeks gestation) by chorionic villus sampling and DNA analysis

Advantages of screening

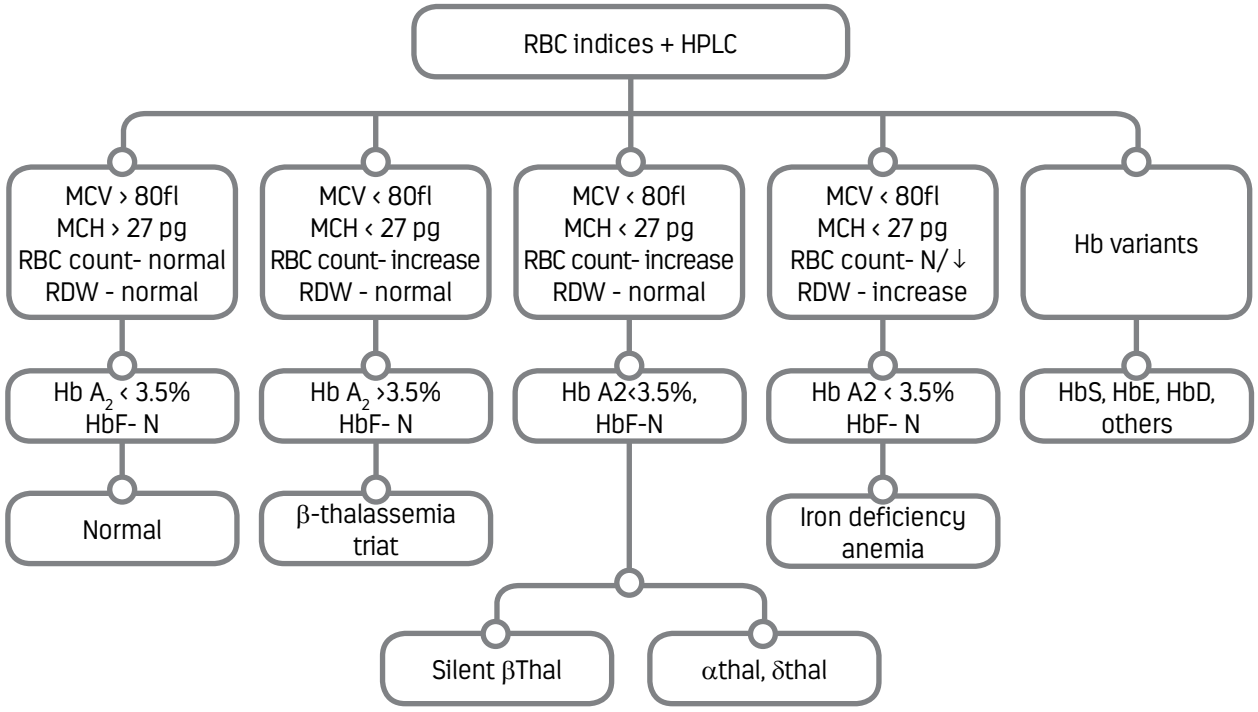
- Smaller population
- Better cost: Benefit ratio

*Pediatric Hematology Oncology Journal. 2017; 2 (4): 79-84

Algorithm for carrier screening

CBC and HPLC analysis of hemoglobins is generally used in regions reporting the carrier frequencies of β-thalassemia and other hemoglobinopathies. The cut off value of HbA2 for diagnosis of β-thalassemia carriers is usually taken as 3.5% along with reduced MCV (<80fl) and MCH (<27pg) levels with a relatively high RBC count and normal RDW.*

Screening for carriers of hemoglobinopthies



δβ thalassemia and HPFH carriers have normal HbA2 (<3.5%) and high HbF (10-25%) with variable RBC indices

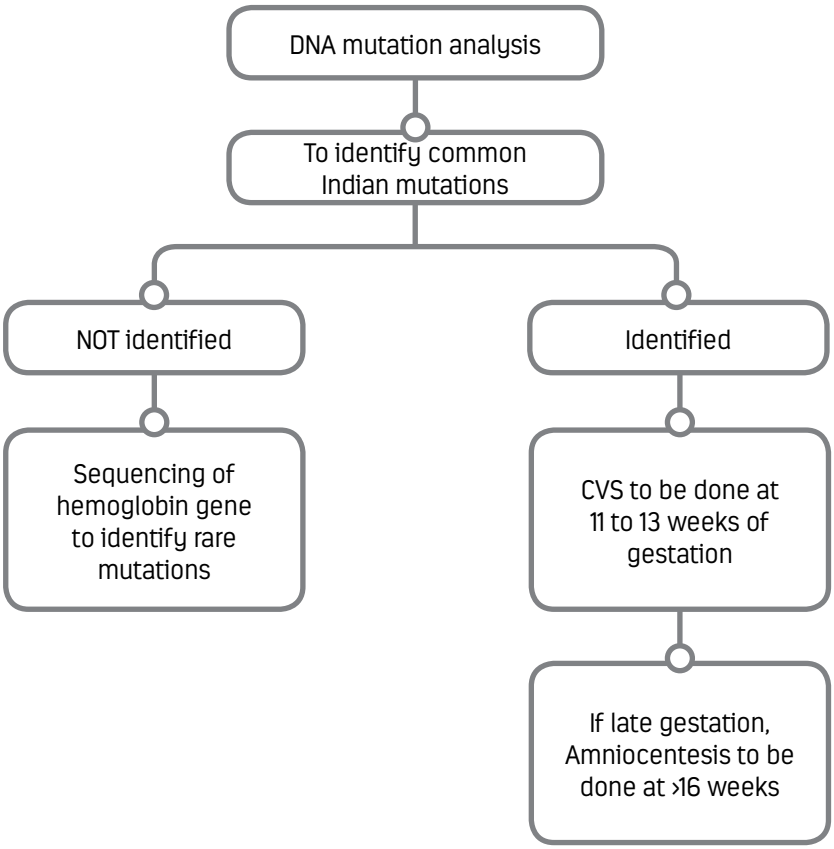
Further screening in a couple positive for HPLC

Genetic counselling

If both partners are found to be carriers of thalassemia or an Hb variant, or of a combination of thalassemia and a hemoglobin variant, they should be referred for genetic counselling. Ideally, this should be prior to conception, or as early as possible in the pregnancy. Additional molecular studies may be required to clarify the carrier status of the parents and thus the risk to the fetus. Table 1 shows the indications for referral to geneticist.

Table 1. Indications for referral to medical genetics for additional molecular studies and counselling	
Clinical scenario	**Testing required**
Both members of the couple are found to be β-thalassemia carriers One partner is a β-thalassemia carrier nad the other partner is a carrier of an Hb variant (eg HbS, HbE) Both partners are carriers of HbS One partner is a carrier of HbS and the other is a carrier of HbC or HbD	DNA analysis of the β-globin gene
One partner is a β-thalassemia carrier and the other is an α-thalassemia carrier Both partners are α-thalassemia carriers Both partners have low MCV or low MCH, with normal iron sutdies and normal hemoglobin electrophoresis/HPLC	DNA analysis of the α-globin gene
Hb: hemoglobin; HbS: sickle-cell hemoglobin; MCV: mean corpuscular volume; MCH: mean cell hemoglobin; HPLC: high-performance liquid chromatography; HbE: Hemoglobin E; DNA: deoxyribonucleic acid	

DNA studies (region specific): Mutation diagnosis



*Pediatric Hematology Oncology Journal. 2017; 2 (4): 79-84

** JOINT SOGC–CCMG CLINICAL PRACTICE GUIDELINE

Management of thalassemia[1,2]

Oral iron supplementation

Only oral iron is preferable compared to parenteral iron if the patient is anaemic. It is necessary to monitor serum iron levels during the treatment.

Antacids-Alginates and acid-controller medications

For abdominal pain

Heartburn, nausea and high prevalence of *Helicobacter pylori* infection is common in thalassemia

Causes recurrent abdominal pain in thalassaemic patients

Antacids-Alginates and acid-controller medications to be taken at least 2 hours before or after oral iron intake

1. Eur J Gastroenterol Hepatol. 2005 Dec;17(12):1363-7.
2. https://www.livestrong.com/article/316855-iron-supplements-for-thalassemia-minor/

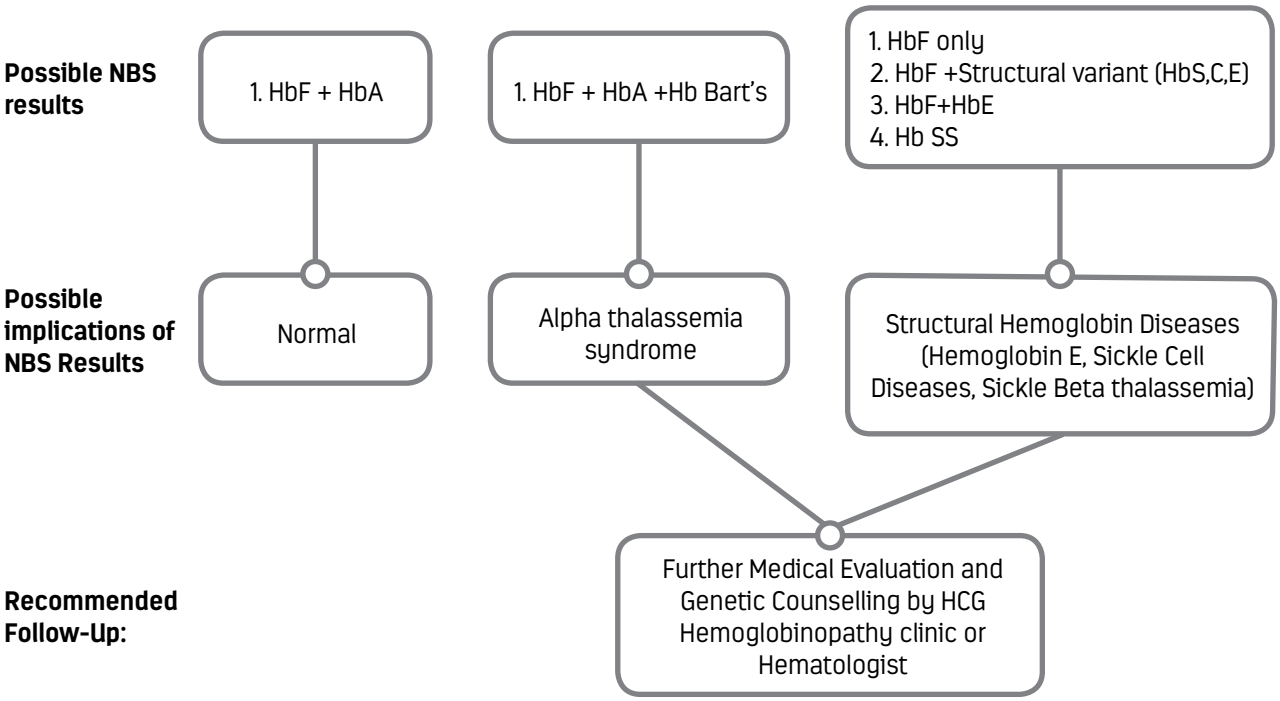
For GERD during pregnancy

In most women, the GERD symptoms usually begin in the late first trimester and tend to continue even in the third trimester. About 30-50% of pregnant women will require antacids to treat heartburn.

Hormonal changes during pregnancy → Reduces gastric motility → Increases gastric emptying time → Risk of GERD

Newborn screening for thalassemia

- Universal Screening of Newborns should be considered for detecting Hemoglobin Variants.
- Heel prick sample is collected on a filter paper and allowed to dry (Dried Blood Spot) after 24hr of birth



Types of hemoglobin

- HbF: Fetal Hemoglobin
- HbA: Adult haemoglobin
- Hb Bart: BartHemoglobin (suggestive of α thalassemia)
- HbE: Hemoglobin E (Structural variant)
- HbC: Hemoglobin C (Structural variant)
- HbSS: Sickle Cell Anemia or Hemoglobin SS disease

The Hawai'i State Department of Health Family Health Services Division. Genetics Program.

VIRAL INFECTIONS IN PREGNANCY

Moderators : Dr. Hrishikesh Pai, Dr. Bharti Malhotra

Panel Members : Dr. Kawita Bapat, Dr. Sampath Kumari, Dr. Sanjeeva Reddy, Dr. Poonam Goyal, Dr. Darshan Wadekar

From left to right: Dr. **Darshan Wadekar, Dr. Sampath Kumari, Dr. Hrishikesh Pai,Dr. Bharti Malhotra, Dr. Sanjeeva Reddy, Dr. Kawita Bapat, Dr. Poonam Goyal**

Preface

Viral infections during pregnancy is a benign conditions with a few notable exceptions, such as herpes virus. The viral epidemics and pandemics have shown how pregnant women suffer worse outcomes (such as preterm labor and adverse fetal outcomes) as compared to the general population and non-pregnant women.

The pregnant woman undergoes an immunological transformation to promote and support the pregnancy and growing fetus. If there is a breach of this immune protection (viral infection), this security is weakened and infection with other microorganisms can then propagate and lead to outcomes, such as preterm labor. The importance of understanding the role of viral infection during pregnancy is becoming more relevant due to the growing risks of pandemics that may have significantly impact on the pregnant mother and the fetus.

Evidence indicate a higher risk of severe illness for that pregnant women from viral infections. These viral infection may predispose the pregnancy to preterm labor and preterm delivery by infection with other superimposed microorganisms. Hence guidelines for pregnant women are at higher risk is important in order to provide appropriate approaches for treatment as well as for prevention.

Best wishes!

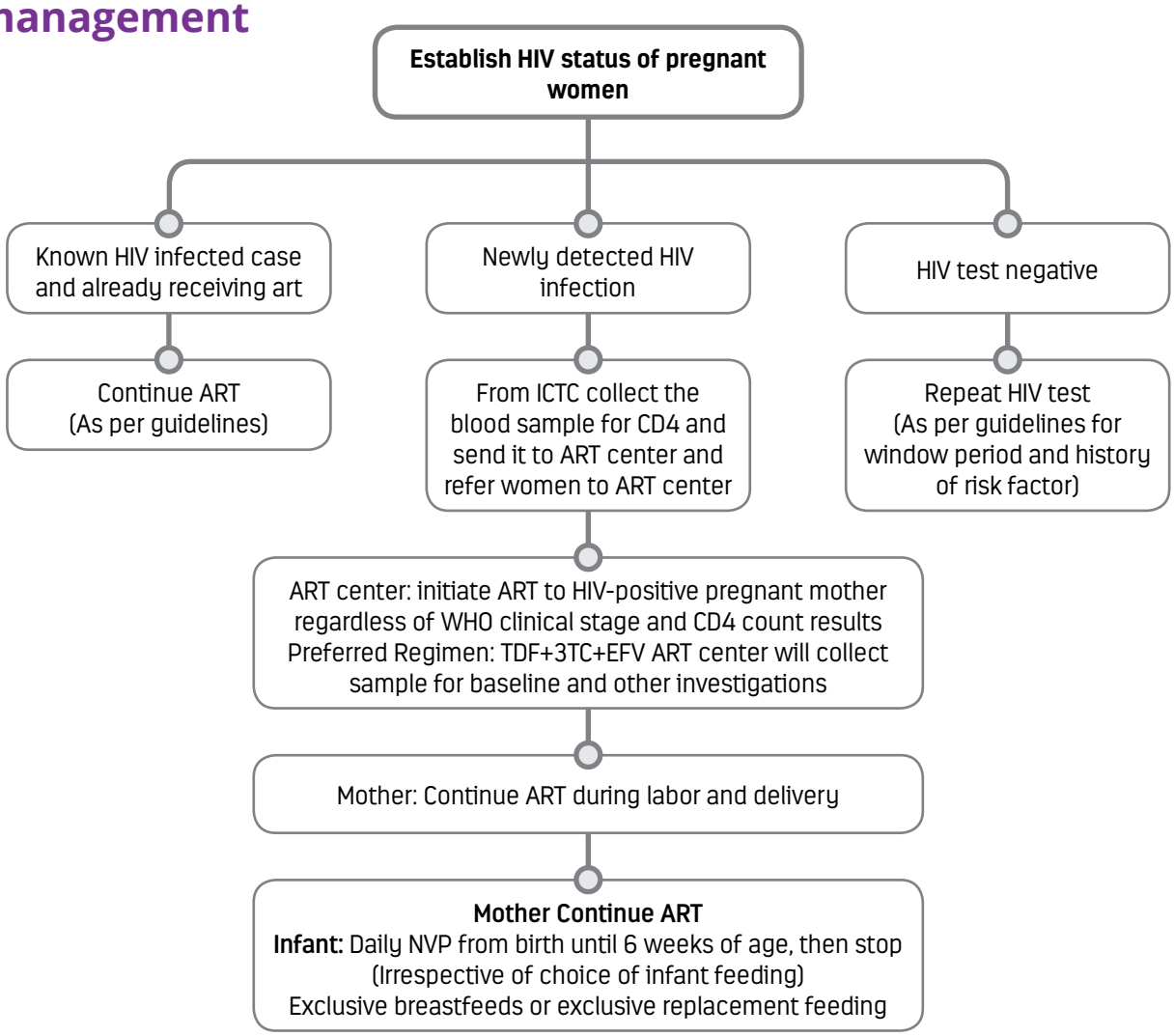
Dr. Jaideep Malhotra

MD, FICMCH, FICOG, FICS, FRCOG, FRCPI, FMAS

President 2018 - Federation of Obstetrics & Gynaecological Societies of India (FOGSI)

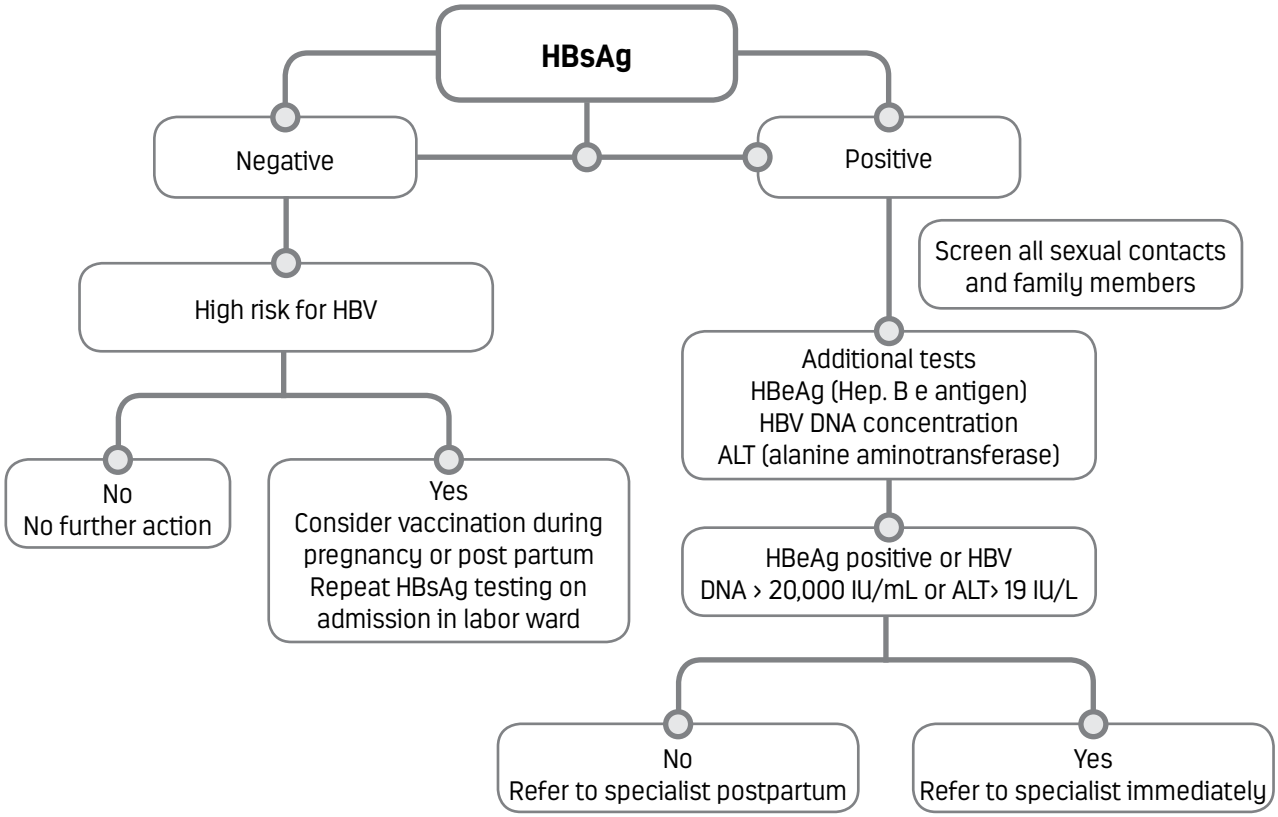
Infections	Routine	Recommendations
Hepatitis B virus	Yes	Should be offered to all. effective postnatal interventions can be offered.
HIV	Yes	Should be offered early in antenatal care to reduce mother-to-child transmission of HIV infection. referral to appropriate special list team.
Rubella	Yes	If negative can give vaccination in the postnatal period.
Parvovirus	No	Fever with rash
Dengue	No	Fever with rash
Zika	No	History of visit
Influnza	No	Respiratory problems with fever
Varicella	No	Exposure
Herpes	No	Painful skin lesions
Hepatitis A, C, E virus	No	Should not be offered insufficient evidence to support its clinical and cost-effectiveness.

Human immunodeficiency virus (HIV) in pregnancy management

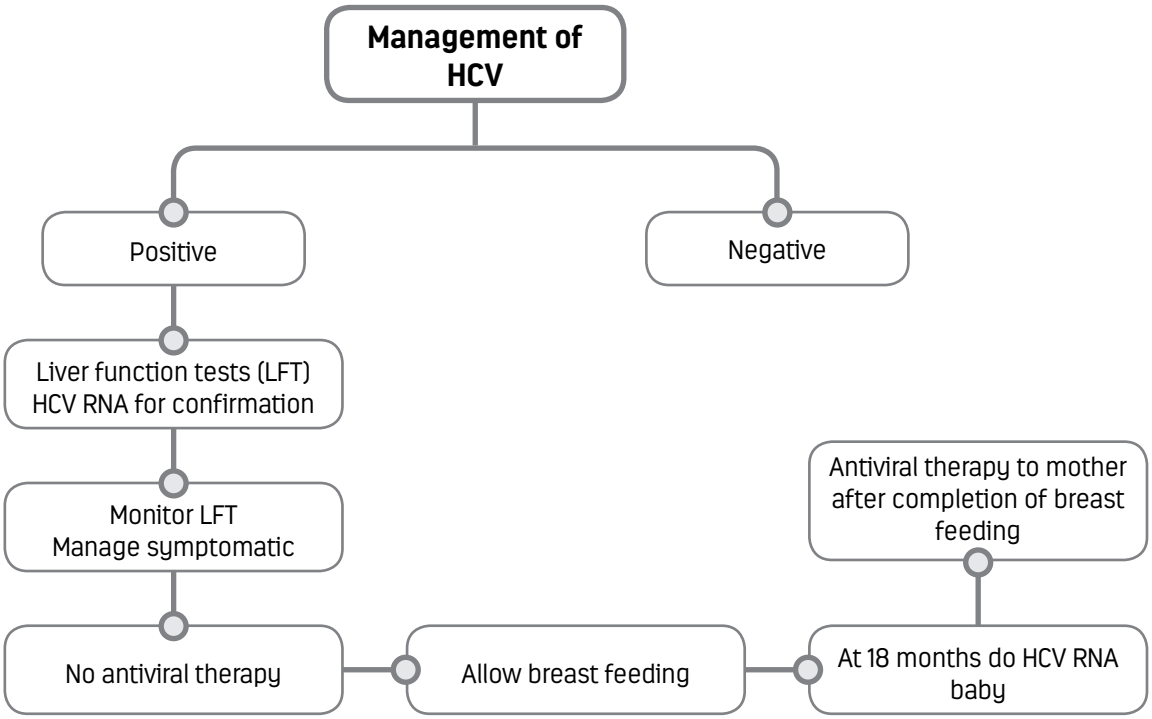


ART: Antiretroviral therapy; ICTC: Integrated Counselling and Testing Centres; TDF+3TC+EFV: tenofovir+ lamivudine + efavirenz; NPV: nevirapine

Screening and referral algorithm for hepatitis B viral (HBV) infection in pregnant women

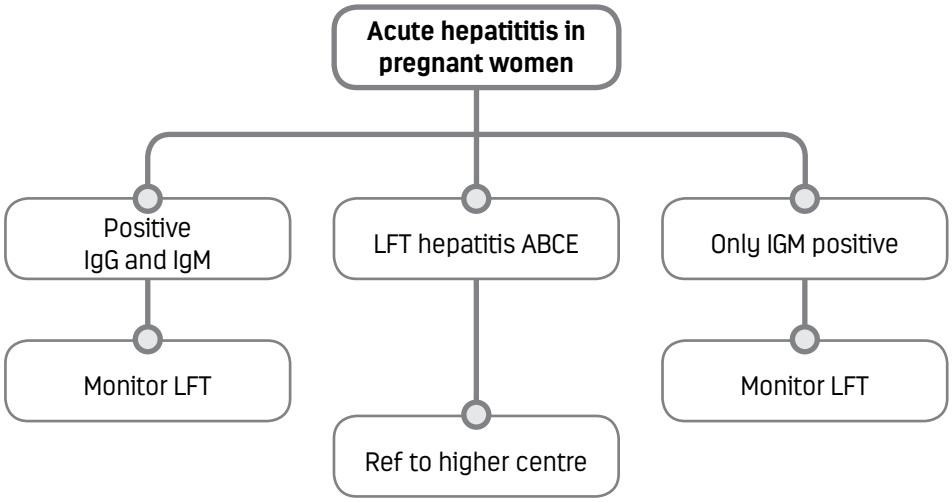


Hepatitis C

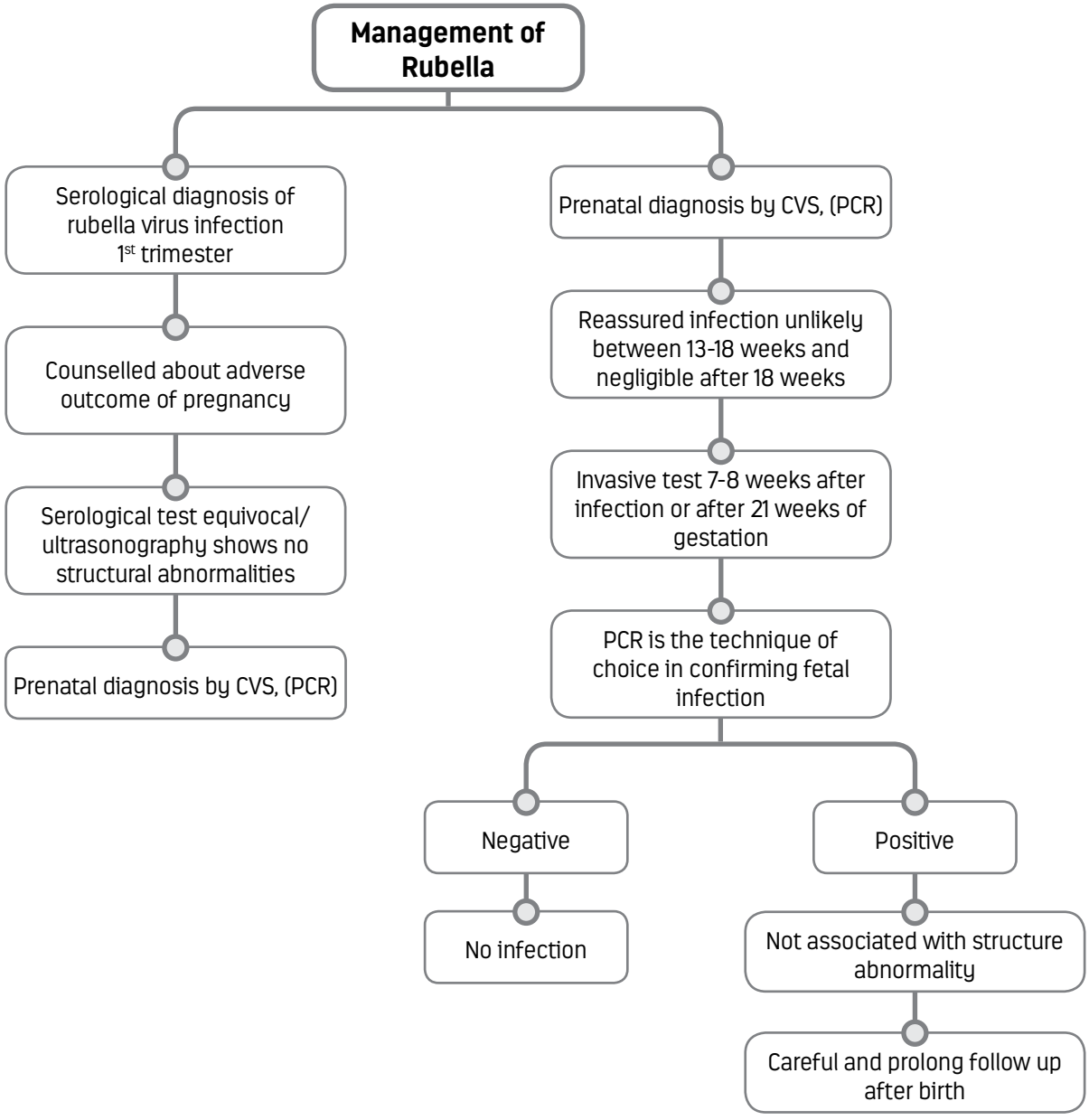


HBsAg: hepatitis B virus surface antigen; HBeAg: hepatitis B e antigen; DNA: deoxyribonucleic acid; RNA: ribonucleic acid

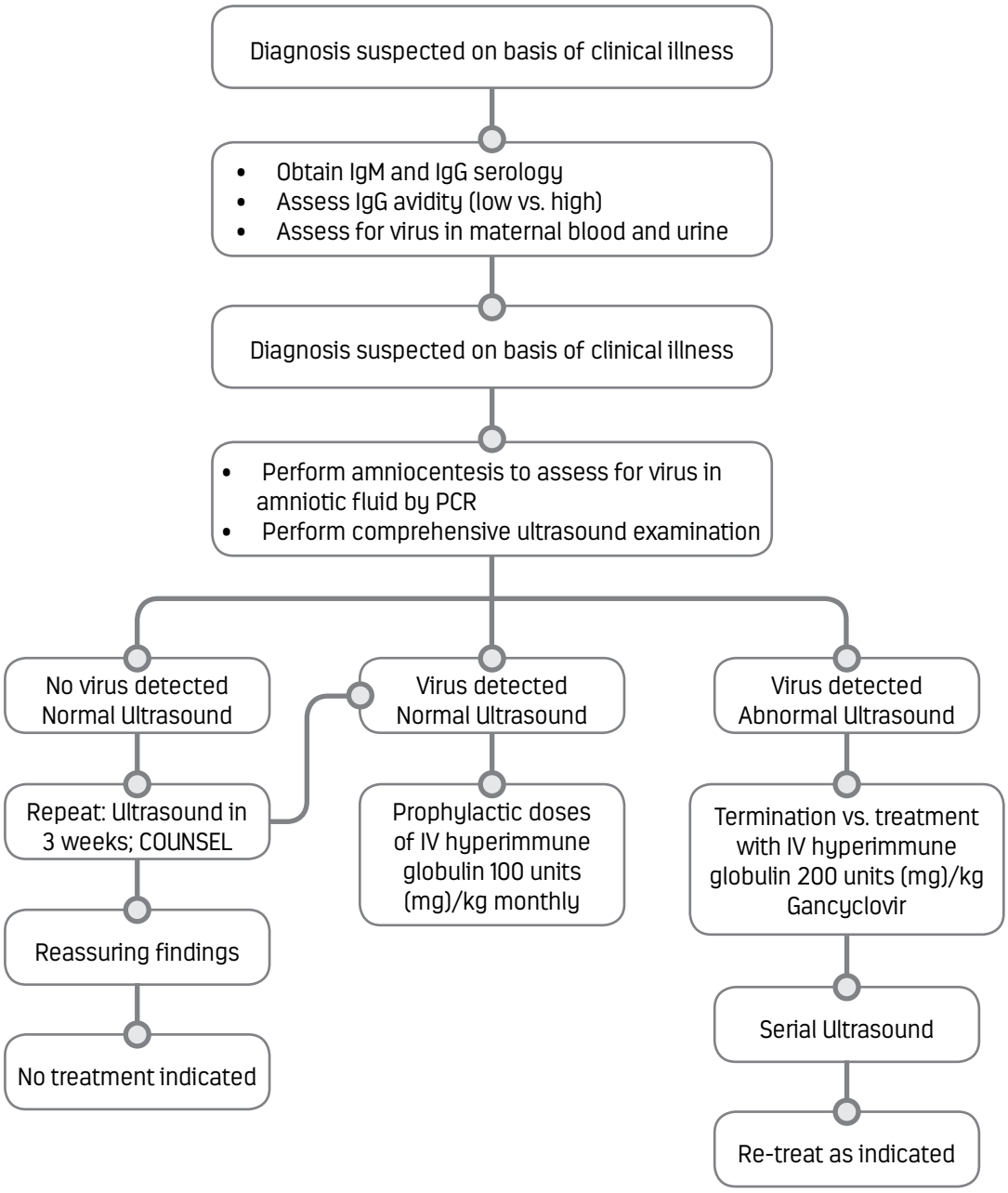
Hepatitis E



Rubella

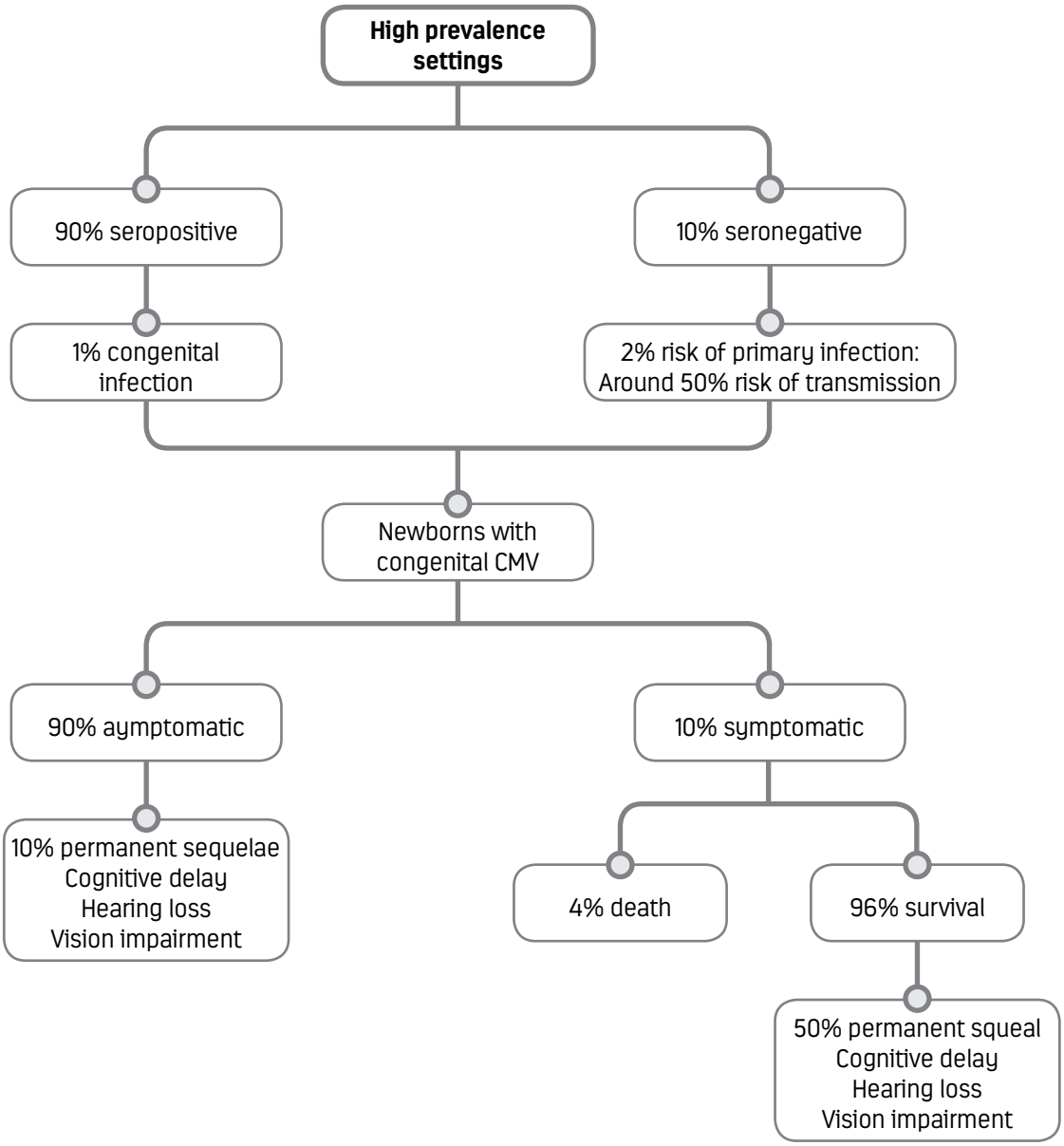


Management of congenital cytomegalovirus

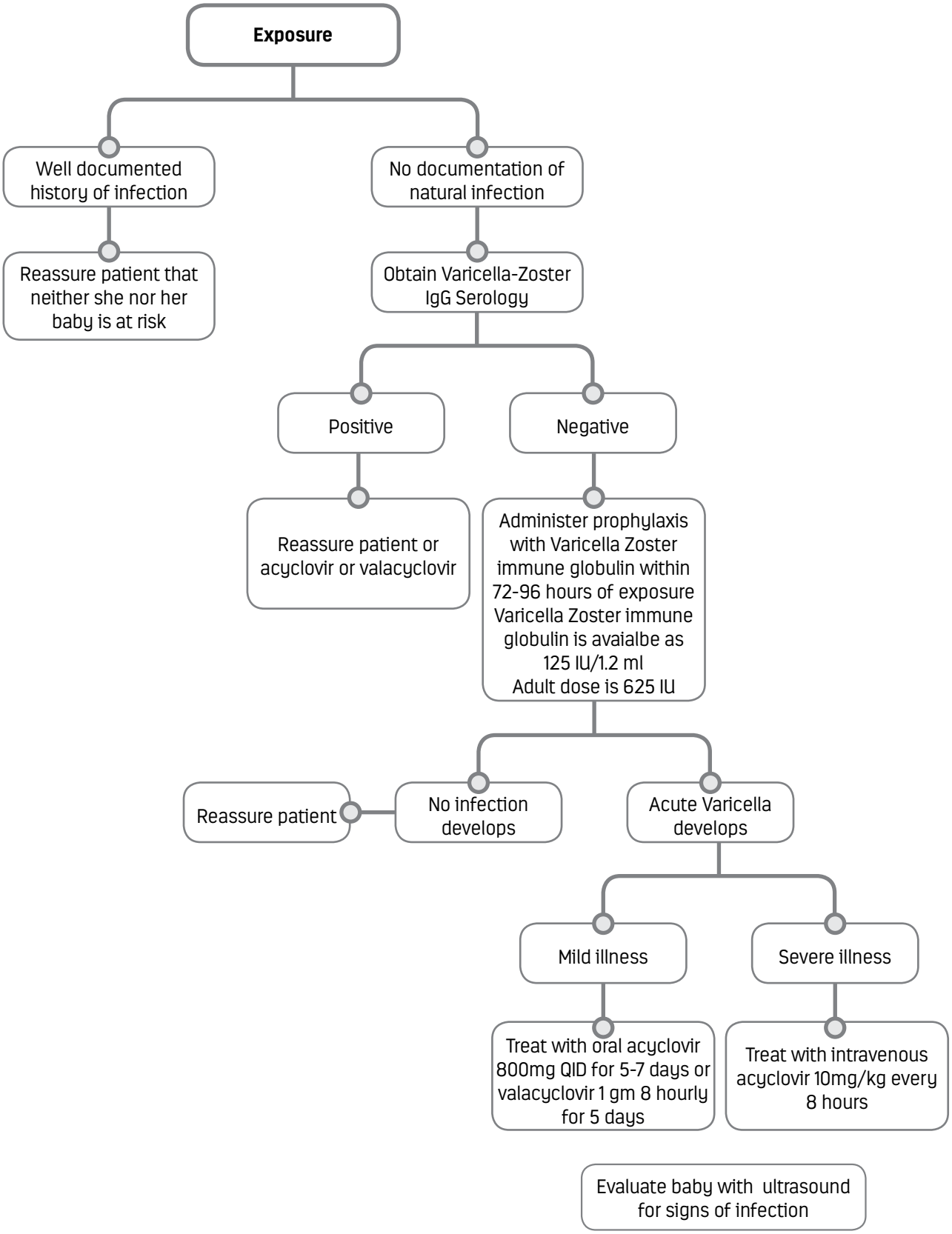


IgG: immunoglobulin G; IgM: immunoglobulin M; PCR: polymerase chain reaction

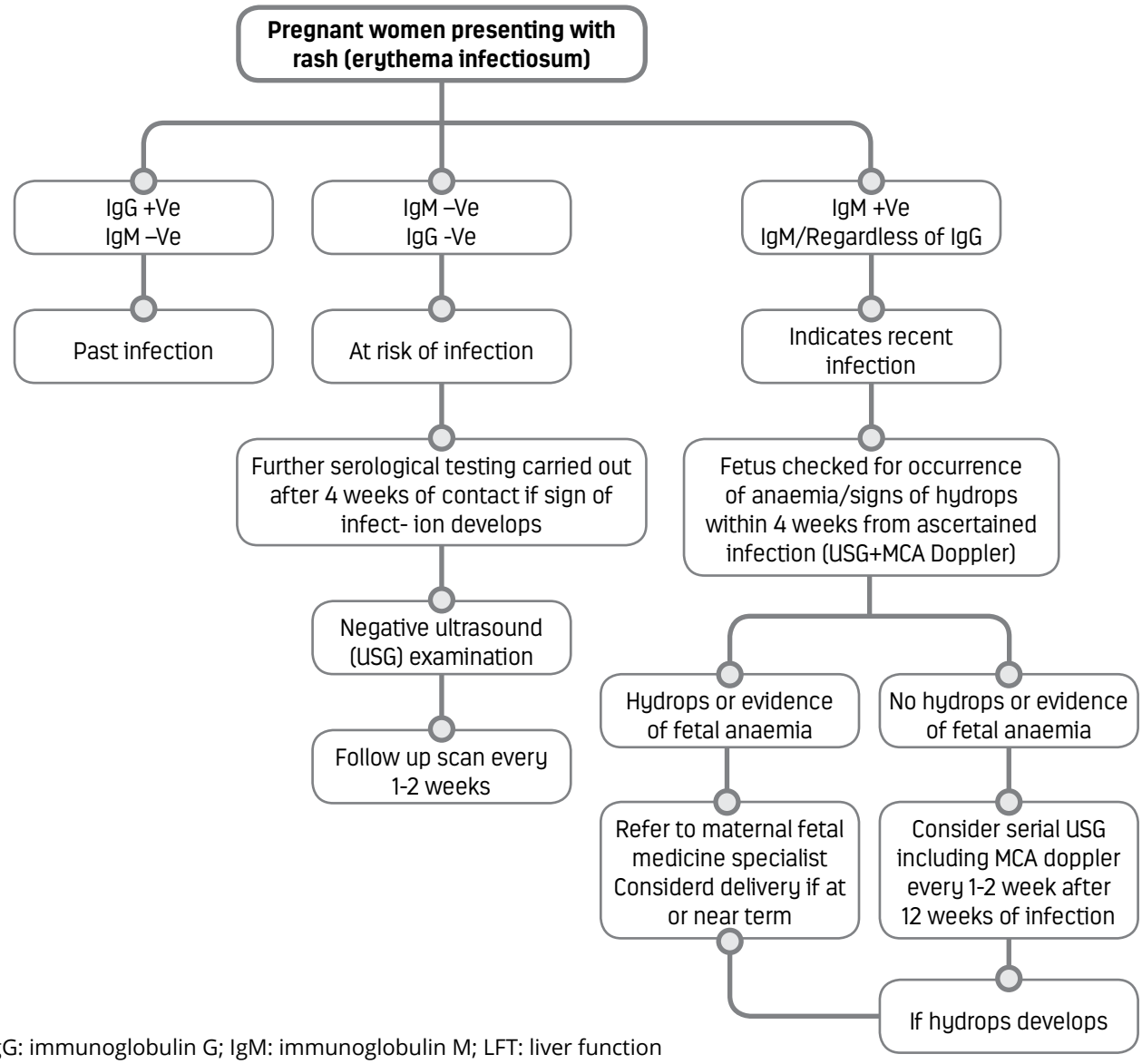
Risk of fetal and neonatal affection in cytomegalovirus (CMV)



Algorithm for the diagnosis and management of varicella in pregnancy

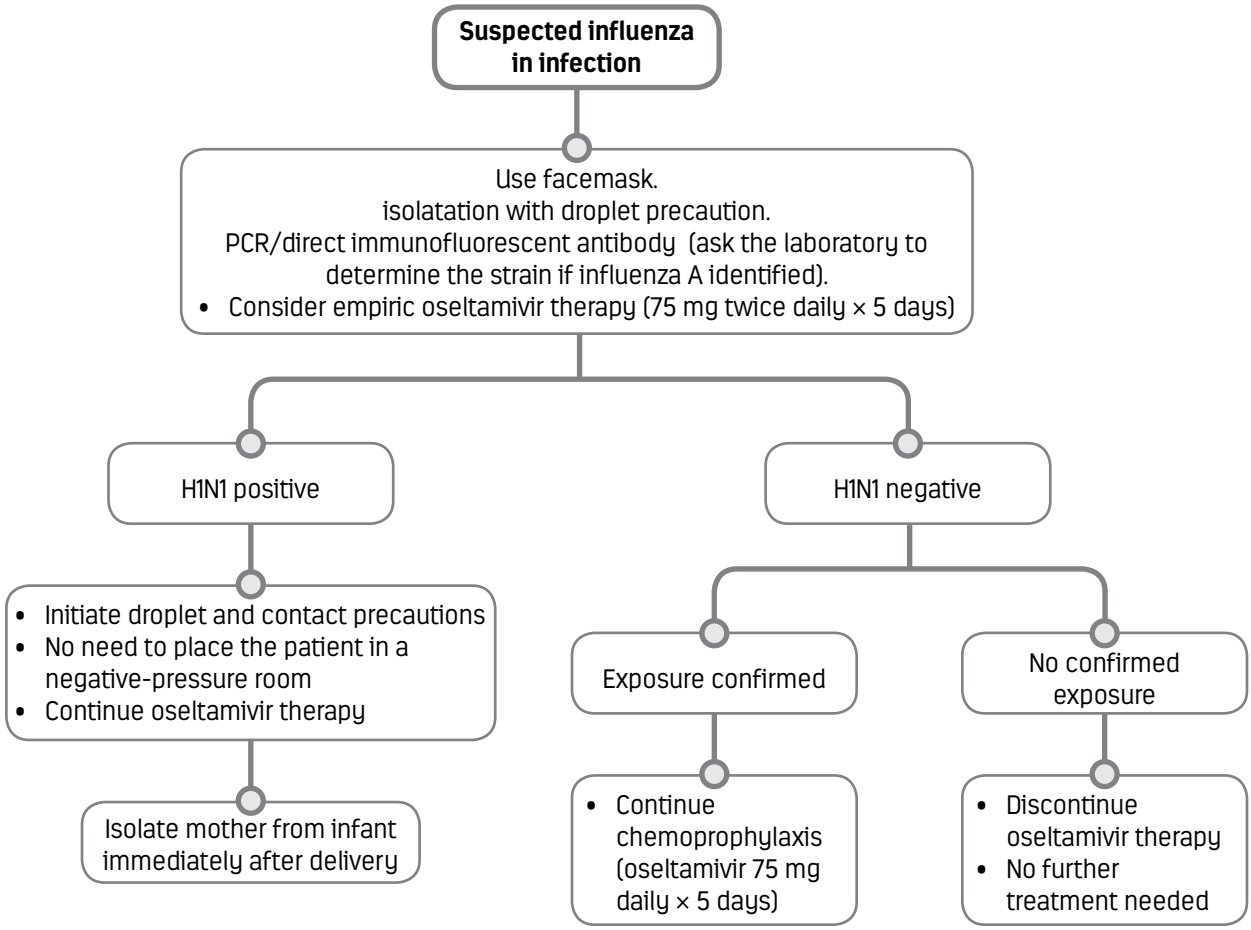


Management of parvovirus B19

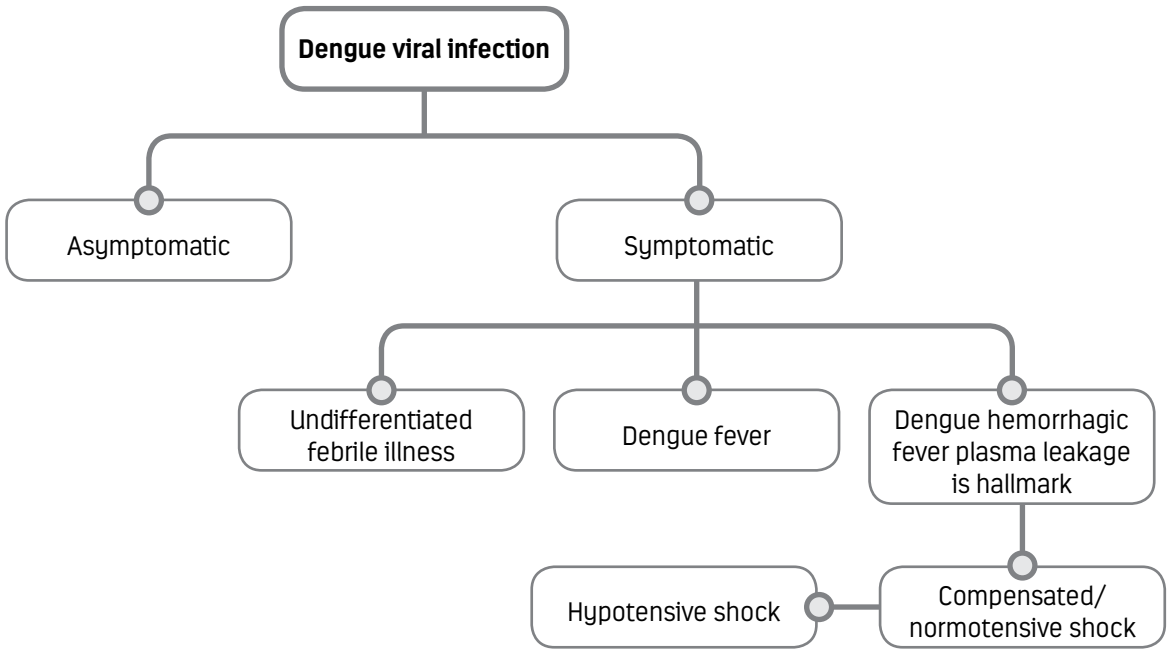


IgG: immunoglobulin G; IgM: immunoglobulin M; LFT: liver function test; MCA Doppler: Fetal middle cerebral arterial Doppler

Screening for influenza infection



Dengue in pregnancy



PCR: polymerase chain reaction; H1N1: swine-origin influenza A

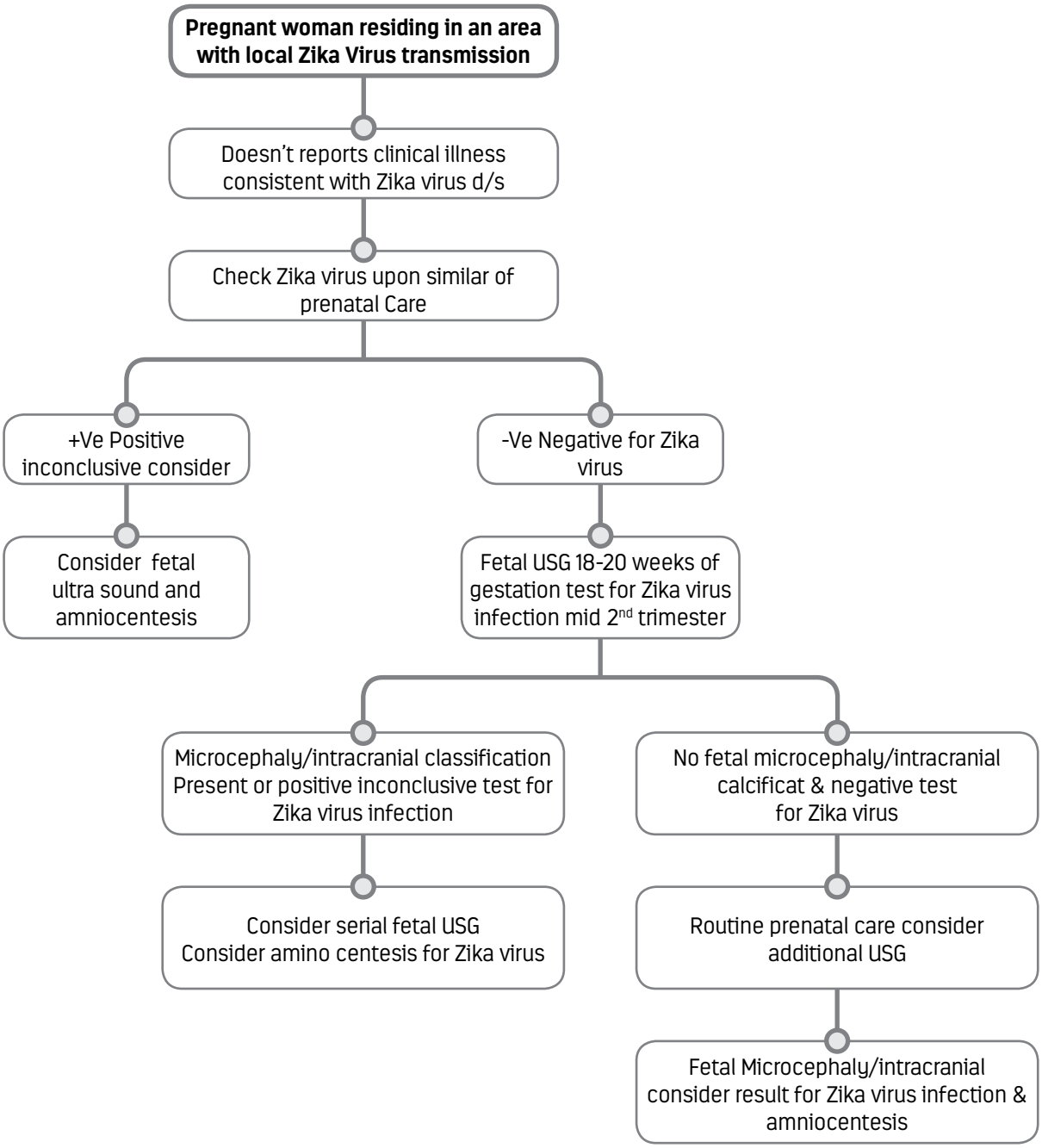
Dengue

- Do baseline CBC on D1/D2 of fever.
- If WBC count normal/Lower side suspect DF and repeat CBC after 24 hours and compare further fall in platelets/ rise in PCV (10% rise is considered as significant).
- Rapid NS1 antigen : detected on Day 3 of fever.
- Dengue IGM detected after Day 5 of fever. Full Blood Count (CBC/FBC) as a baseline, as well as to monitor progress of disease is most important tool.
- Paracetamol 500-650 6 hourly.
- Symptomatic management as per need.

Management of chikunguniya

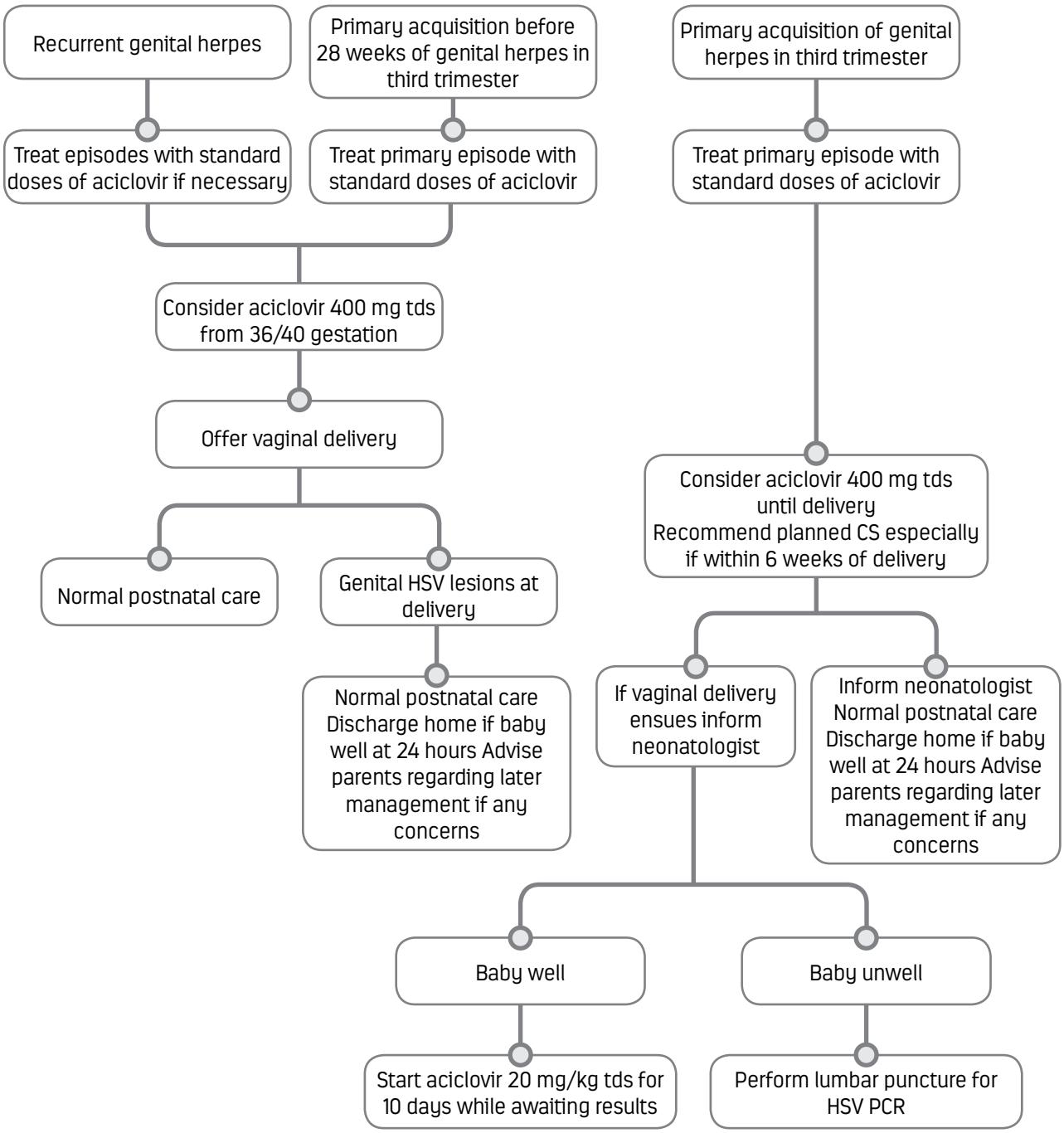
- Pregnant women can become infected with chickunguniya virus.
- During all stages of pregnancy and have symptoms similar to other individuals.
- Most infections will not result in the virus being transmitted to the fetus.
- The highest risk for infection of the fetus/child occurs when a woman has virus in her blood (viremic) at the time of delivery.
- Rare reports of first trimester abortions occurring after chikungunya infection.
- Take precautions to avoid mosquito bites.
- No evidence that the virus is transmitted through breast milk.

Pregnant woman residing in an area with local Zika Virus transmission



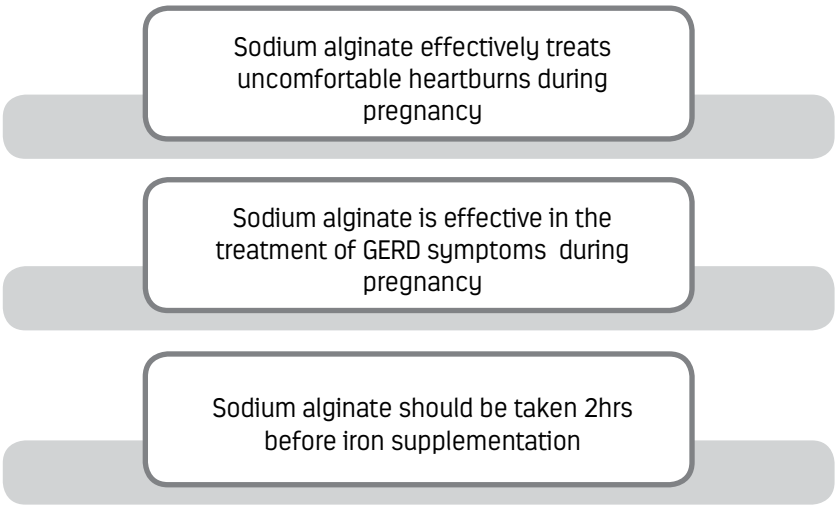
USG: Ultrasound

Algorithm for the management of Herpes in pregnancy and care of neonate



HSV: herpes simplex virus PCR: polymerase chain reaction

Sodium alginate is effective in treating GERD during pregnancy



Hygiene and spread of viral infections

The importance of hands in the transmission of virus infections is well recognized. Proper hand hygiene is the single most important, simplest, and least expensive means of reducing the prevalence and spread of viral infection. Improved handwashing and surface hygiene procedures have been shown to interrupt the transmission of viral infections via hands, surfaces or fomites.

AUTOIMMUNE DISORDERS

Moderators : Dr. Narendra Malhotra

Panel Members : Dr. Sheetal Punjabi, Dr. Sebanti Goswami, Dr. Chaitali Datta Ray, Dr. Alpesh Gandhi

From left to right: Dr. Alpesh Gandhi, Dr. Chaitali Datta Ray, Dr. Sebanti Goswami, Dr. Sheetal Punjabi, Dr. Narendra Malhotra

Preface

Autoimmune diseases affects population with a ratio of two-to-one in women versus men. Many autoimmune diseases lack treatments or cures, often contributing to increased morbidity and mortality. Women with children have been noted to have a higher incidence of autoimmune diseases, 44.3%, compared to nulliparous women.Autoimmune disease complicates pregnancy by posing immunologic challenges already faced by the mother. Symptoms of an autoimmune disease could improve, worsen, or remain unchanged during pregnancy depending upon the specific autoimmune disease a woman suffers with.

In case of women with autoimmune rheumatoid arthritis, 75% of pregnancies we can observe improvementin signs and symptoms of rheumatoid arthritiswith peak improvement in the second or third trimester.In contrast to this, the disease course of systemic lupus erythematosus (SLE), is less predictable during pregnancy and in these patients pregnancy confers either no benefit or results in a modestly increased risk of a SLE exacerbation. Also, a number of complications of pregnancy are more frequent in women with SLE as compared to healthy women, including spontaneous abortion.

Autoimmune thyroiditis is the most common cause of hypothyroidism and hyperthyroidism, which presents for the first time during pregnancy, the incidence of disease onset is especially increased postpartum. For women who have autoimmune thyroiditis before conceiving, pregnancy is generally not associated with disease improvement or exacerbation.

In the past, women with autoimmune diseases were frequently counseled against conceiving. Today, more and more women with a range of autoimmune conditions are enjoying healthy pregnancies and the pregnancy care differ for patients with autoimmune disease.

It is generally recommended that these patients be followed in a high-risk clinic. Their care is really disease- and patient-specific. Partnership between the clinician monitoring the disease and the obstetrician/gynecologist is crucial. Pregnancy and autoimmunity are a potentially complicated combination. But with the right guidance and therapy, these women can become healthy mothers.

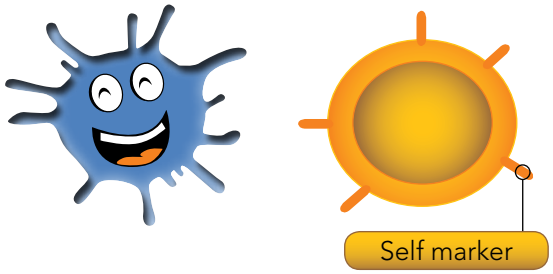
Best wishes!

Dr. Jaideep Malhotra

MD, FICMCH, FICOG, FICS, FRCOG, FRCPI, FMAS
President 2018 - Federation of Obstetrics & Gynaecological Societies of India (FOGSI)

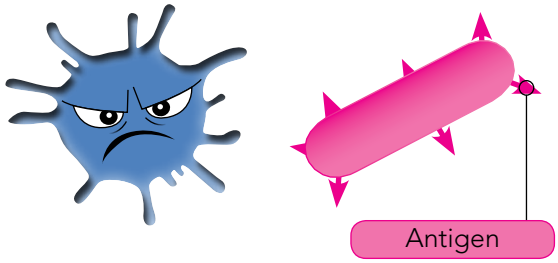
Background

IDENTIFYING SELF



A self marker (MHC) labels the body's cells as a 'friend' and are tolerated by the immune system

IDENTIFYING NON-SELF



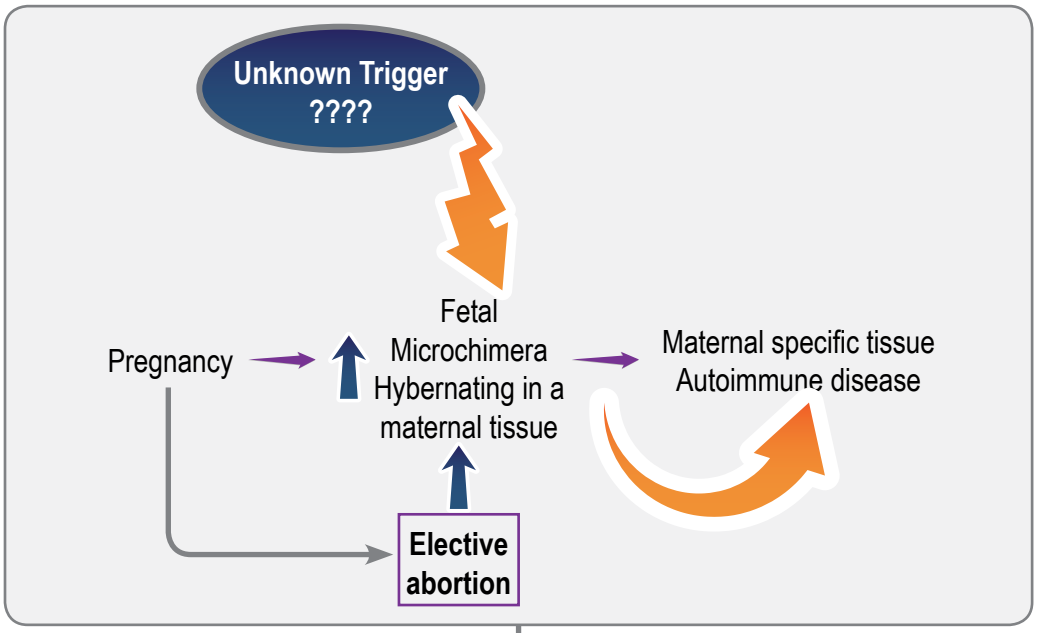
An antigen is a molecule that the immune system recognises as foreign (non-self) and treats as a 'foe'

Usually the bodies defense mechanisms come into play immediately or within hours of an antigen's appearance. These include skin, chemicals in the blood and immune system cells that attack foreign cells in the body.

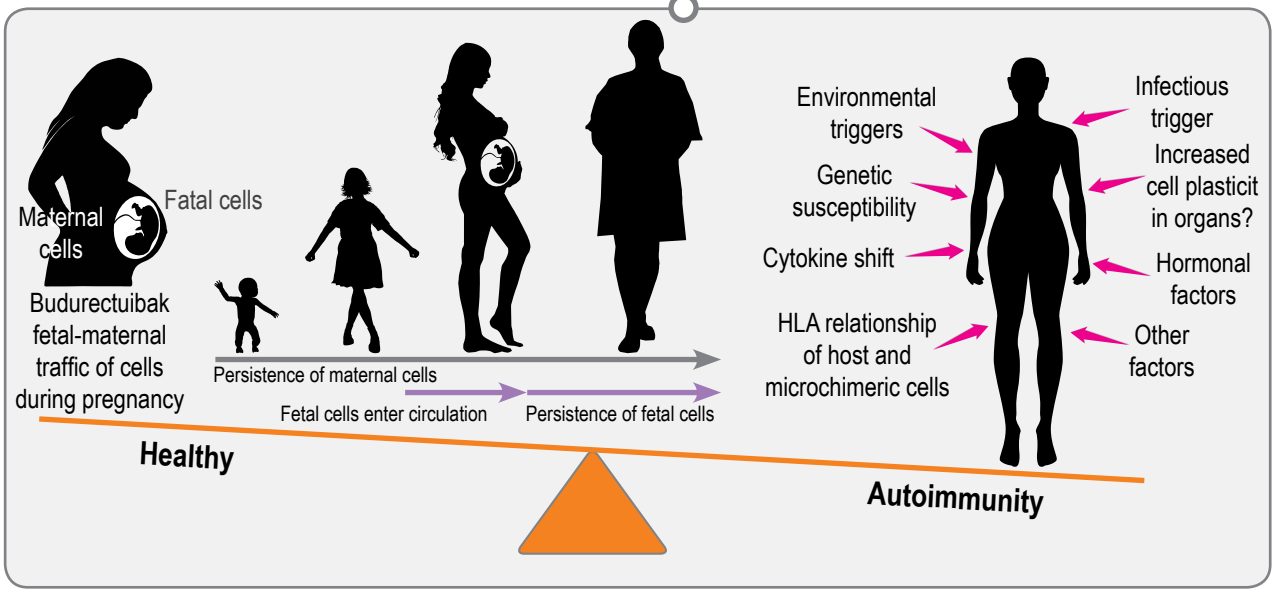
Failure to recognise self-autoimmune diseases

- When the body fails to recognize its own tissues and starts to destroy it
- May involve many organs or be organ specific

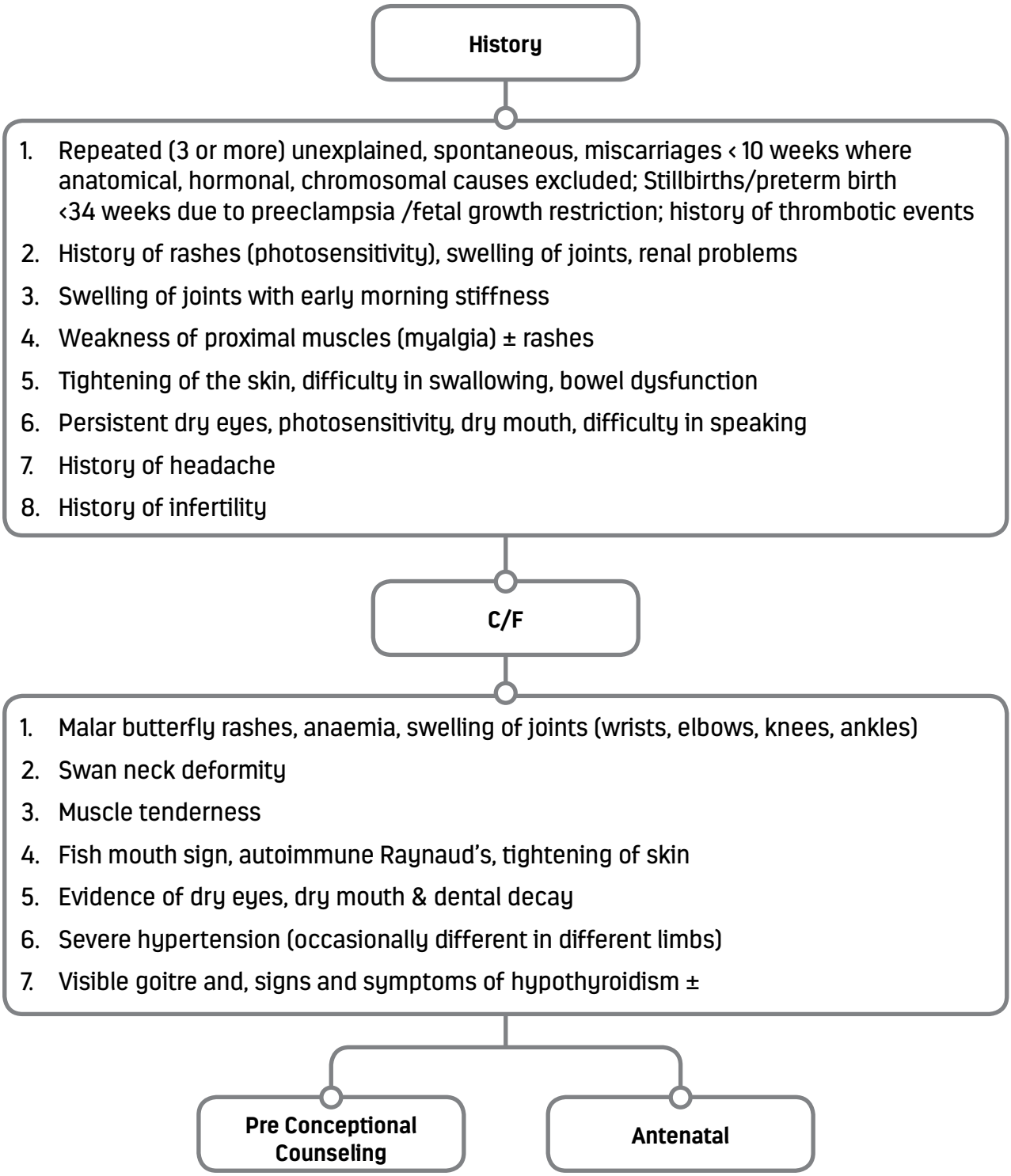
Causes



- Feto-maternal trafficking during pregnancy has been implicated
- Cesarean: highest risk of mixing of blood
- Abortion: lower risk- "more primitive fetal stem cells"
- More trafficking: PET, GDM



Suspected autoimmune disorders

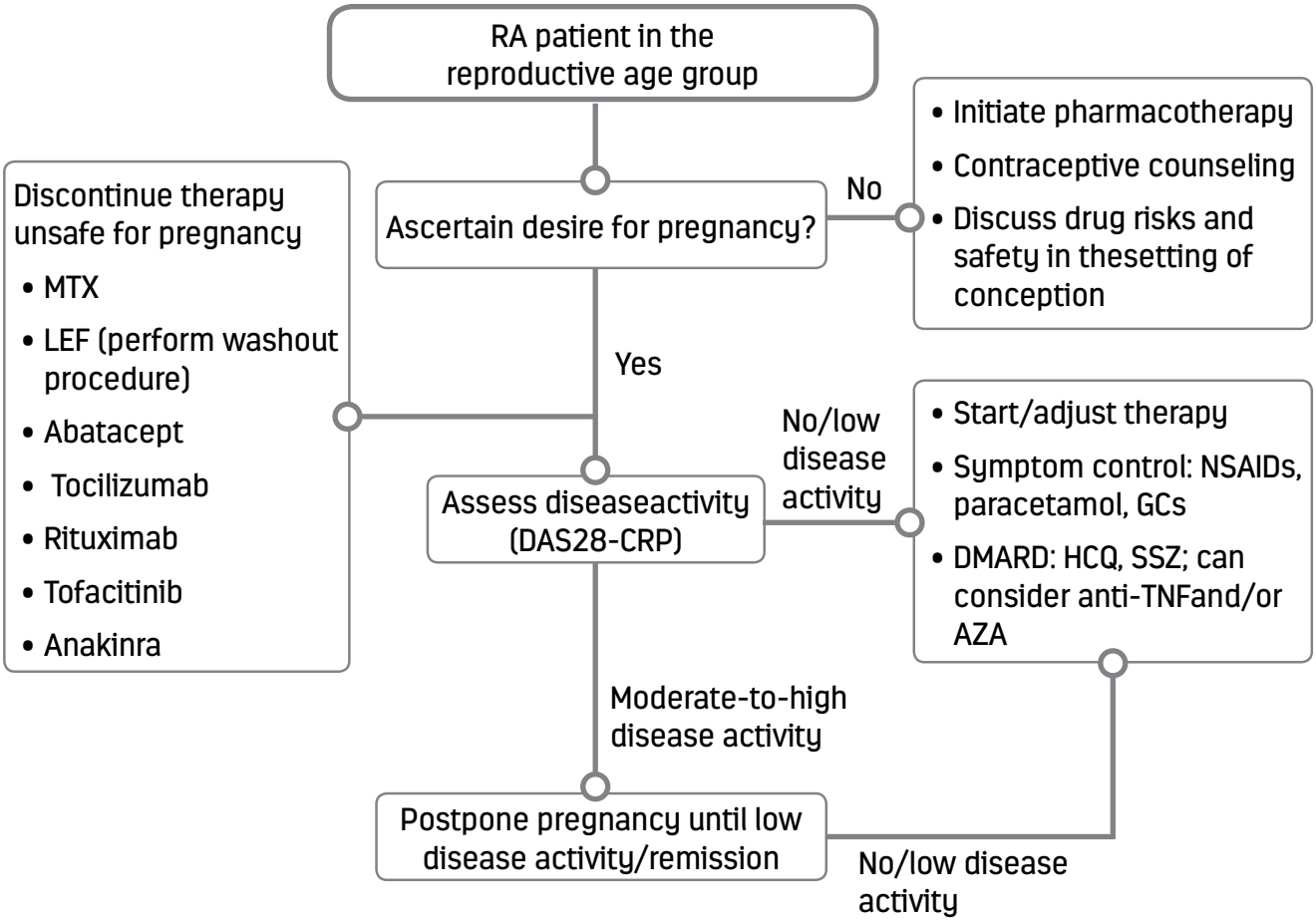


Preconceptional counseling

- Confirm diagnosis of the suspected autoimmune disease
- General PCC as per routine guidelines
- Any autoimmune disease should be in complete remission for at least 6 months prior to conception

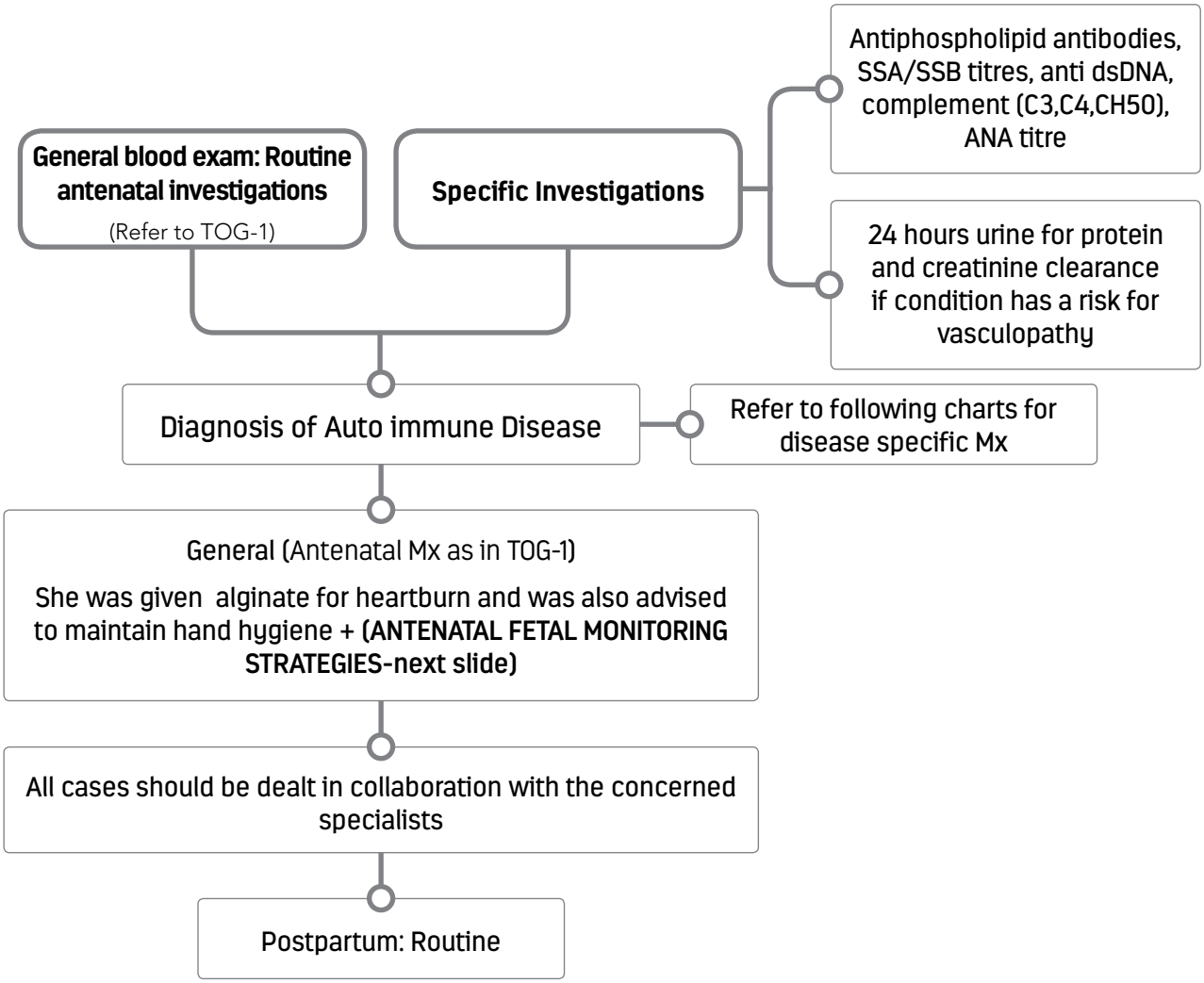
ANTIPHOSPHOLIPID SYNDROME	• **Lupus anticoagulant:** On 2 or more occasions at least 12 weeks apart • **Anticardiolipin antibody (aCL) IgG & IgM:** Medium or high titre (≥40 GPL units or MPL units or ≥99th centile) on 2 or more occasions at least 12 weeks apart • **Anti-b2-glycoprotein I antibody (IgM):** Titre ≥99th centile on 2 or more occasions at least 12 weeks apart • **↑IgG aCL antibody at 1st prenatal visit:** Only measurement significantly associated with fetal loss • **Isolated ↑IgM aCL antibodies:** Not generally associated with recurrent fetal loss
SYSTEMIC LUPUS ERYTHEMATOSUS	• Remission is to be monitored by the recognized scoring system by experts **Contraindications for pregnancy** • Severe PAH (systolic BP >50 mmHg or symptomatic) • Heart failure, Severe restrictive lung disease, chronic liver failure • Treatment with high dosages of corticosteroids • Exacerbation in the last 6 months • Previous severe PET/ HELLP, despite treatment with aspirin and heparin
POLYMYOSITIS/ DERMATOMYOSITIS	• Advise conception after remission because of high abortion rates • Pregnancy does not induce exacerbations of PM • Counsel regarding high mortality in cases with ILD & PAH

SCLERODERMA	• Counsel for subfertility, abortion and renal crisis
SJOGREN'S	• SSA and SSB may be positive, so chances of neonatal cardiac complications
VASCULITIS	• Control of ↑BP prior to conception
THYROIDITIS	• Patient to be euthyroid (TSH <2.5) prior to conception
RHEUMATOID ARTHRITIS	• 70–75% improvement in pregnancy • No ↑ in abortions or stillbirths

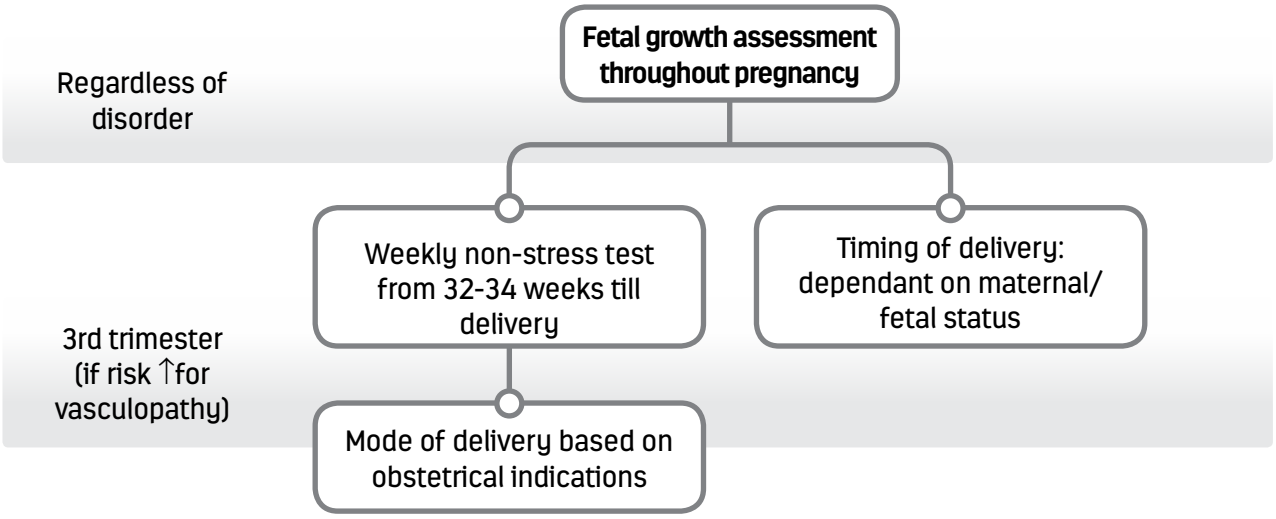


RA, rheumatoid arthritis; MTX, methotrexate; LEF, leflunomide; DAS28, Disease Activity Score in 28 joints; NSAIDs, nonsteroidal anti-inflammatory drugs; GCs, glucocorticoids; DMARD, disease-modifying antirheumatic drug; HCQ, hydroxychloroquine; SSZ, sulfasalazine; TNF, tumor necrosis factor; AZA, azathioprine.

During antenatal period



General antenatal fetal monitoring strategies



Diagnosed case of autoimmune disease

Antiphospholipid syndrome

INVESTIGATIONS: Other tests may be done if necessary as per symptoms along with referral to physician

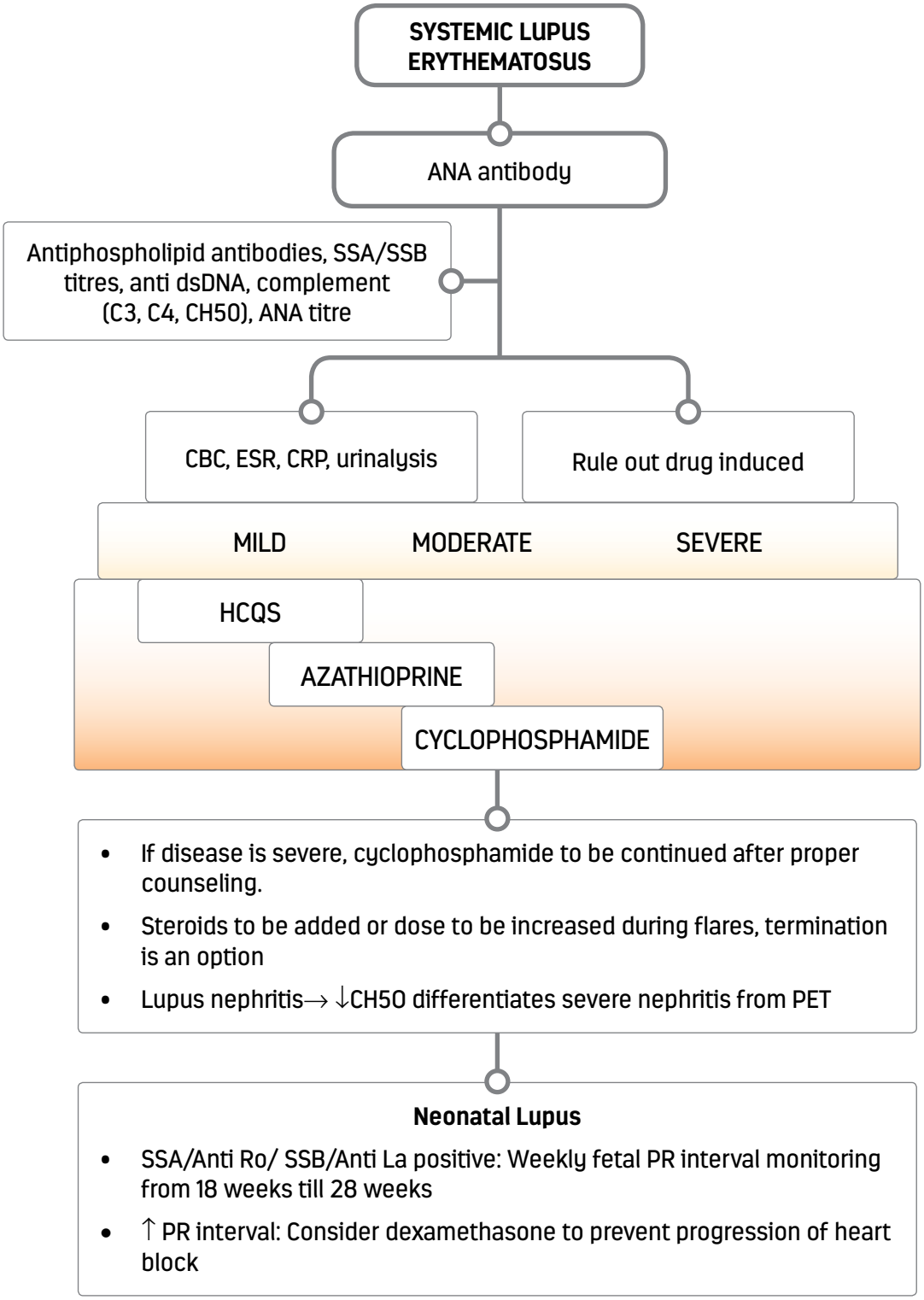
- MRI brain (CVA), chest (embolism), abdomen (Budd-Chiari); (CT if not pregnant and comes as PCC)
- Doppler if DVT suspected
- 2D echo
- Assessment of antenatal fetal well being→Refer to TOG 1

- Stop warfarin if pregnancy is confirmed
- General routine antenatal Rx
- Aspirin+Heparin→ as soon as soon as pregnancy is confirmed
- Prednisolone if refractory (more chances of PROM & PET)

Postpartum warfarin may be started

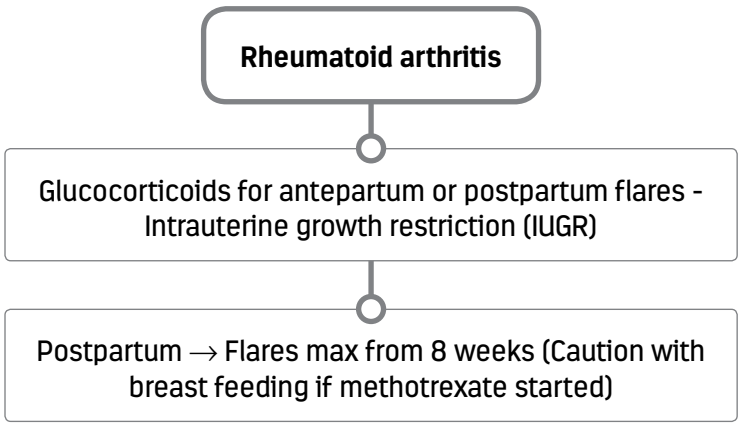
INR to be maintained between 1.5–2.5

Systemic lupus erythematosus

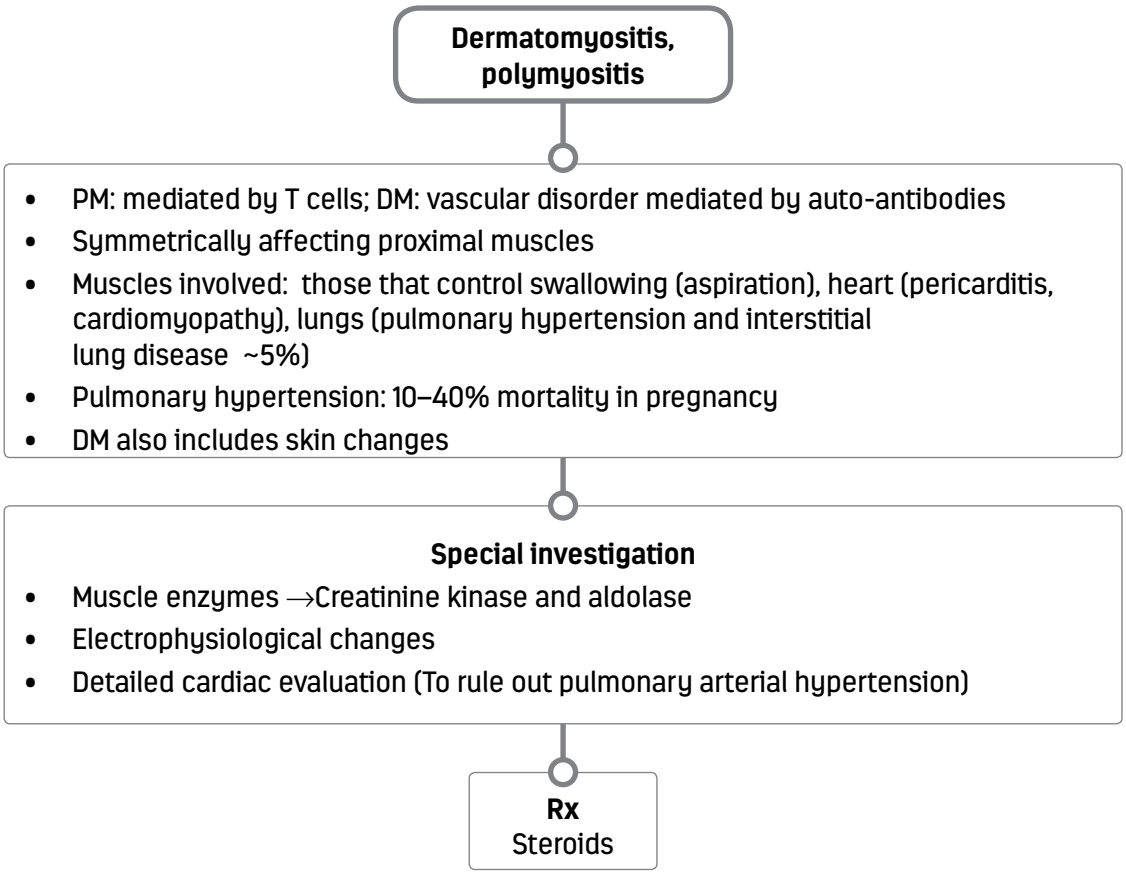


ANA: antinuclear antibody; dsDNA: Double-stranded DNA; CH5O: 50% hemolyzing dose of complement; PET: positron-emission tomography

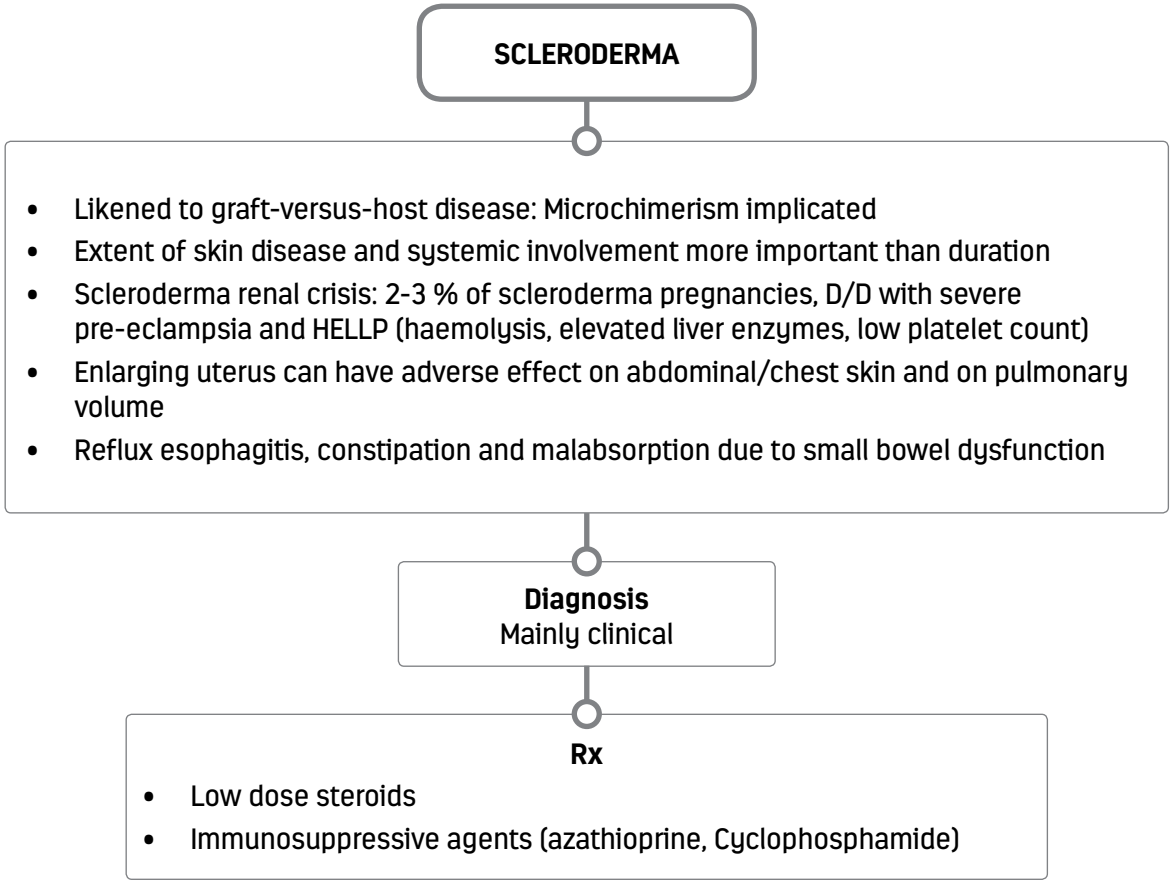
Rheumatoid arthritis



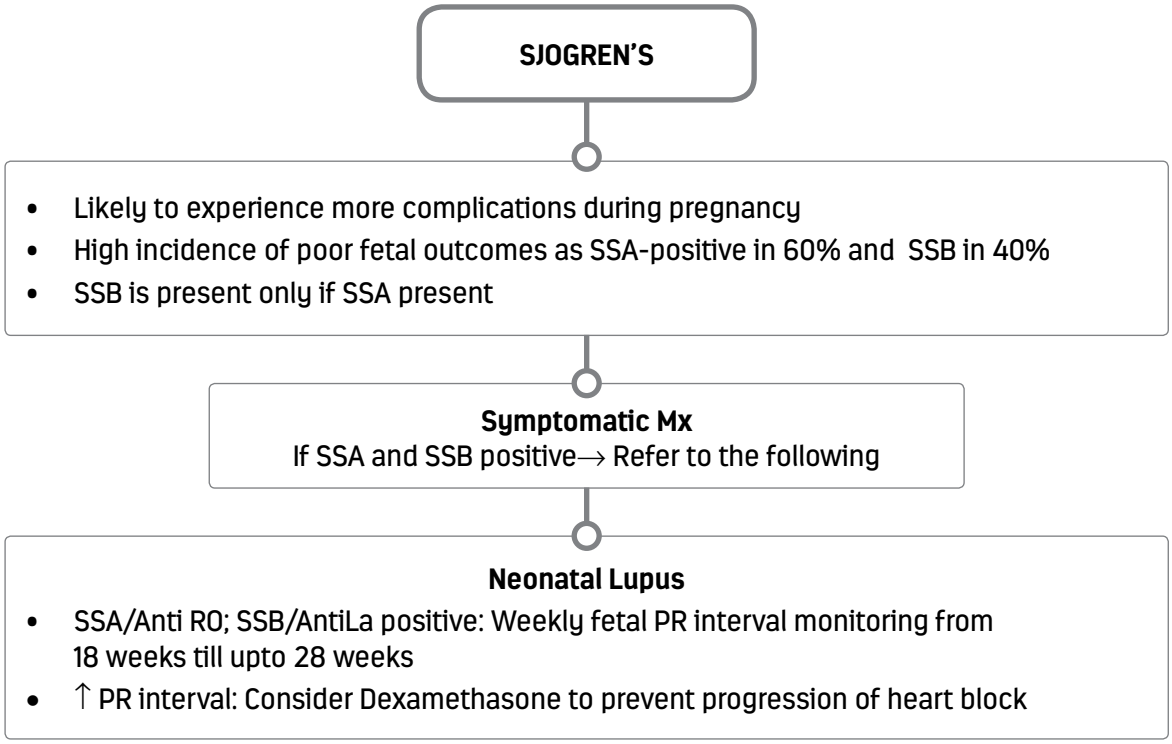
Dermatomyositis (DM), polymyositis (PM)



Scleroderma



Sjogren's



Vasculitis

VASCULITIS

Is an immune vasculitis which can cause aneurysms, ruptures, stenosis, ischemia or infarction

Takayasu

- Immune arteritis: inflammation of aorta, major branches and pulmonary arteries
- Early age of onset- <30 years
- Asian preponderance (1 in 3000 in Japan)

Diagnosis, investigation & Mx
Multidisciplinary(involving cardiologist specially) approach

Autoimmune thyroiditis

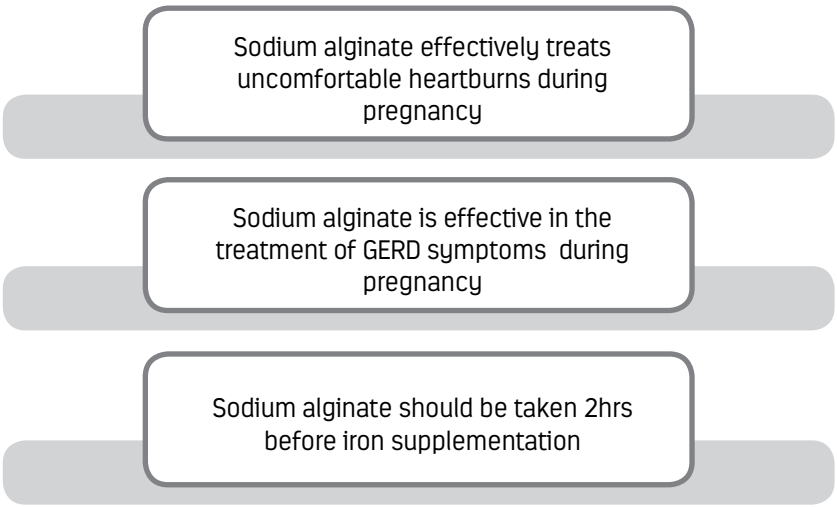
AUTOIMMUNE THYROIDITIS (AITs)

- Prevalent condition in women of childbearing age
- Several types of AITs: most noteworthy Hashimoto's thyroiditis
- During pregnancy: initially high levels of antithyroid antibodies fall abruptly due to immune tolerance environment
- Upon diagnosis of organ-specific AID (Hashimoto thyroiditis, type 1 diabetes, vitiligo): associated systemic diseases must be ruled out

Diagnosis
Full thyroid profile, anti thyroid peroxidase antibody (TPO) profile

Rx
L-thyroxine supplementation

Sodium alginate is effective in treating GERD during pregnancy

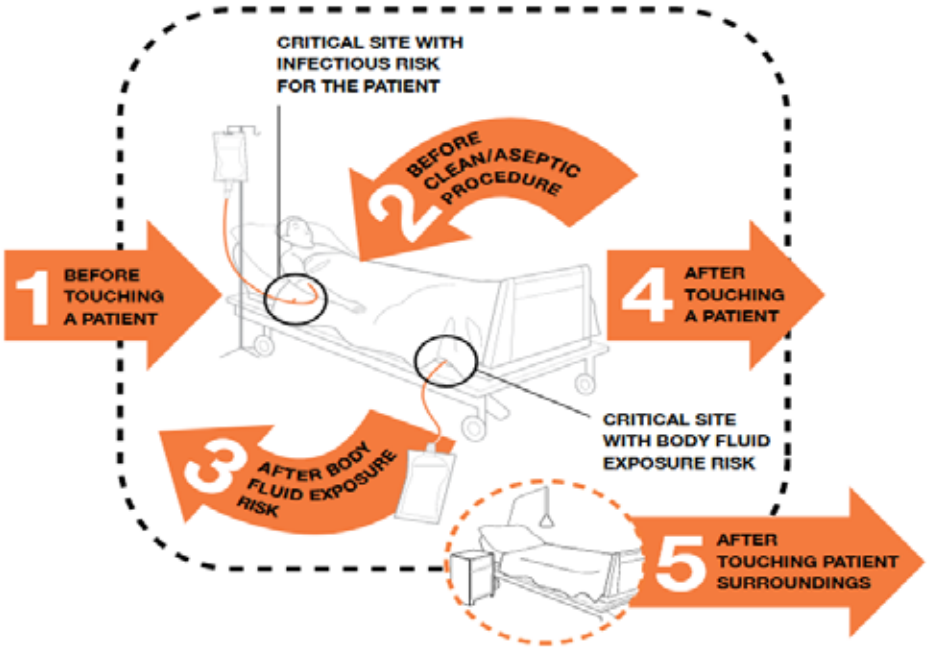


Hand hygiene

- Frequent hand washing to be followed for protection from infections
- Hand hygiene to be performed after touching blood and contaminated items–immediately after removing gloves, between patient contact to avoid transfer of infection
- Hand hygiene to be performed between procedures to avoid cross contamination

Procedure to follow a proper hand hygiene regimen

1. Use of a correct product including a soap and water.
2. Alcohol based rubs such as chloroxylenol hand rub can be used.
3. Using a correct concentration of solution is important; 60-75% w/v
4. Use an adequate amount of around 3-5ml of the solution for handwashing
5. Handwashing should be performed for about 60 to 90 seconds
6. Proper steps and movements of washing should be performed for effective results



General hygiene practices

- It is necessary to take a shower or a bucket bath every day
- Add antiseptic solution 1 teaspoon full in bucketful during a bath
- Clipping of nails regularly is mandatory
- Wash hands at key moments and in special conditions, as genital or orofacial lesions, febrile illness, rashes, cough, and cold
- Covering mouth and nose at time of coughing and sneezing
- Avoid exposure with diseased person

Commonly used antiseptics

Alcohol based rubs

- Chloroxylenol
- Alcohol preparations
- Chlorhexidine
- Cetrimide
- Halogenated phenols
- Hydrogen peroxide
- Sodium Hypochlorite
- Tincture iodine, povidone
- Triclosan

Antibacterial activity of widely used antiseptics

A study was conducted to ascertain the activity of a selection of widely-used antiseptic/ disinfectant agents against antibiotic resistant bacteria and strains isolated from patients infected with clinically significant species.*

- Antiseptics which gave microbial effect (ME) values of >5 were considered to have passed the test and to have acceptable antibacterial activity.
- Dettol was more effective against the antibiotic resistant strain of S. aureus (MRSA) at 0.25χ, whereas betadine demonstrated negligible activity at the lowest dilution and failed at half strength. Betadine was effective against the antibiotic sensitive strains.
- No difference was observed in the activity between the antiseptics at recommended concentrations against pathogenic or antibiotic resistant strains.
- Some micro-organisms have been reported to develop resistance to few antiseptics such as chlorhexidine, quaternary ammonium compounds, iodine and heavy metals.
- Table 1 shows mME values for four antiseptics at three concentrations.

Table 1. Antibacterial activity, expressed as mME, for four antiseptics at three dilutions, against test bacteria*

		Median ME value			
Organism	**Concn.[a]**	**Dettol**	**Dettol HC**	**Savlon**	**Betadine**
S. aureus	χ 0.5 χ 0.25 χ	>5.5 5.5 3.8	5.4 6.0 5.4	>5.7 6.4 5.9	5.7 4.3 4.3
MRSA[b]	χ 0.5 χ 0.25 χ	>5.7 >5.7 >5.6	>5.7 >5.6 >5.6	>5.7 >5.7 >5.7	5.1 4.3 0.4
E birae	χ 0.5 χ 0.25 χ	>6.0 >6.0 4.9	>6.0 5.6 >6.0	>5.5 >6.2 5.1	5.4 ›6.0 ›6.0
VRE[c]	χ 0.5 χ 0.25 χ	>5.7 >5.7 >5.7	>5.7 >5.7 >5.7	>5.7 >5.7 >5.7	>5.7 >5.7 4.8
E. coli Atcc10536	χ 0.5 χ 0.25 χ	>5.1 6.0 6.0	>6.1 >5.9 >5.9	>5.5 5.7 4.4	>6.0 >6.1 >6.1
E. coli 0157	χ 0.5 χ 0.25 χ	>6.0 >6.0 >6.0	>6.0 >6.0 >6.0	>6.0 >6.0 >6.0	>6.0 >6.0 4.8

[a]Concentration of antiseptic; [b]MRSA: methicillin resistant *S. aureus;* [c]VRE: vancomycin resistant Enterococus sp.; mME: median microbial effect

Concentration of antiseptics used in Table 1				
Concentration code	**Dettol**	**Dettol Hospital concentrate**	**Savlon**	**Betadine**
χ	5% v/v	1% v/v	5% v/v	80% v/v
0.5 χ	2.5% v/v	0.5% v/v	2.5% v/v	40% v/v
0.25 χ	1.25% v/v	0.25% v/v	1.25% v/v	20% v/v

χ: Recommended use concentration

* J Roy Soc Health. 1998; 118 (1):18-22


TOGI
3rd CONCLAVE