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President's message



Dr. Ajith S
President, KFOG

I am glad to write President's message for our KFOG journal. This is the first journal published after me taking as the President. I take this opportunity to thank all of you in electing me to this prestigious post. I also request cooperation from all of you. It has been a long challenging year for all of us. Last year most of our academic activities were done virtually. Soon we hope coming back of our physical meetings and get together.

We have renovated our KFOG website, and I request all of you to be a regular visitor of this site. All our journals and other activities will be uploaded there. I congratulate Dr Reji Mohan for bringing out this journal and wish all the best for his next task as chairperson of academic committee of KFOG. Wishing you all safe 2021

With warm regards
Dr Ajith S MD, FRCOG

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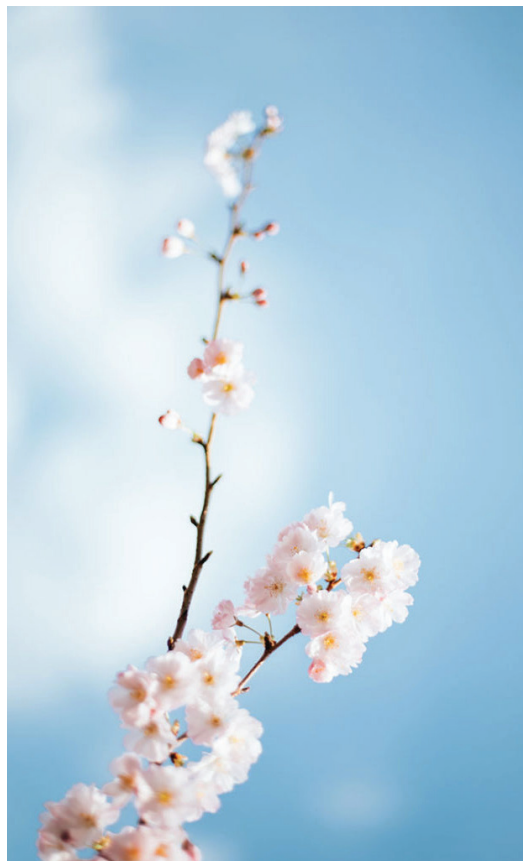
Secretary's message



Dr. Venugopal
Secretary, KFOG

I am very happy to know that dr reji our editor is coming out with his last edition in his tenure with some exceptionally good articles by eminent members of KFOG.Hope it will be useful for each and every member of KFOG family. Wishing you all happy reading and once again reminding you to STAY SAFE

Dr.Venugopal



Editors Note



Dr. Reji Mohan
Editor

Dear KFOGians,
God bless you
The covid 19 pandemic has come as a catastrophe for all of us.We all are the proud Frontline warriors fighting this demon,we stood together fought together and still continuing to fight with all the vigor and vitality. I started the work of this journal way back during the start of second wave but couldn't finish in time for many reasons.I would like to apologize all the contributing authors from my bottom of my heart for this delay.I also take this opportunity to thank all the KFOG family members for their trust and unconditional support especially Dr.Venugopal our secretary, past KFOG presidents Dr.B.Pressannakumari,Dr.Gopeenathan and Dr.Ambujam.Once again apologies for our shortcomings and hope all of you will enjoy reading the articles.
STAY SAFE STAY BLESSED
Signing off
Bella Ciao

Dr. Reji

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A Paradigm shift is required in our approach to PPH - A personal point of view



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OUTLINE

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 3. If excess bleeding noted, take quick steps to arrest bleeding- TVUAC and suction cannula
 4. 4th stage management
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 6. Avoid Reactionary haemorrhage and secondary PPH after caesarean section
 7. Avoid traumatic PPH especially after instrumental deliveries
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- Conclusions

INTRODUCTION

PPH still remains the number one killer of mothers across the developing world. In the developed countries also PPH occurs but it does not lead to maternal death because of facilities to tackle it. The natural thought that comes to mind is, why can't we also develop such facilities to prevent and manage PPH. The fact is that most of them are not practical, nor affordable in the developing countries. Also, there are other effective and cheaper steps available. Hence I am putting forward some suggestions to bring about a paradigm shift in our approach to PPH.

THE SUGGESTIONS

1. Improve the pre-delivery haemoglobin (Hb) of pregnant women

The ability of a woman to tolerate blood loss during labour depends on the predelivery hemoglobin status. In spite of widespread use of iron and folic acid, most of our women come for delivery with a haemoglobin value of 11gm or less. We should aim for Hb of

>12gm when they come for labour. In the third trimester, if Hb is <11gm, give intravenous iron (rule out thalassemia before prescribing intravenous iron).

2. Promote AMTSL (Active Management of Third Stage of Labour)

Give oxytocic agents as suggested by KFOG (Kerala Federation of Obstetrics and Gynaecology) –

- Give intravenously five units oxytocin diluted to 5 ml, taking about five seconds, at the delivery of the anterior shoulder or within one minute (after ensuring that it is singleton pregnancy)
- Give Oxytocin 10 units IM (intra muscular)
- In those with predilection for PPH, give 20 units Oxytocin as a drip, at the rate of 4ml per minute (20 units in 500 ml, to last for about two hours)
- Delay cord clamping by one minute if the baby has good tone and cry
- Complete delivery of placenta without waiting for signs of placental separation, but only after ensuring a contracted uterus which is pushed upwards while giving cord traction.

3. In case excess bleeding is seen, immediately call for additional help and resort to steps to arrest the bleeding.

Whoever is attending to labour should do this (nurse or doctor). The first requirement is to call for help. Arrive at a provisional diagnosis for the excess bleeding – is it due to atonicity or is it due to trauma.

A traumatic bleeding calls for steps to arrest the bleeding by applying pressure locally or applying an artery clamp.

If it is atonic PPH, the attending person

(nurse or doctor) should resort to bimanual compression of the uterus and ask for the transvaginal uterine artery clamp (TVUAC) or suction cannula. Concurrently, additional oxytocics may be administered – choose agents like methergin or carboprost (prostodin) as appropriate. Other supportive measures to manage PPH should be considered. These may include intravenous fluids, blood and blood products. Once the TVUAC has arrived proceed to apply the clamp.

TVUAC –

This clamp is applied trans vaginally to block the uterine arteries. Since it blocks about 80 to 90 % of blood flow to uterus, bleeding immediately stops. Whatever blood was already inside the uterus may come out. That should not be construed as failure of the clamp. The most important point is to ensure that the clamps are applied at the right level – about 1.5cm above the lateral fornix so that it will include the uterine arteries.

A common question is whether the ureters will get trapped in the clamps. The fact is, even if ureters are blocked for a short time, it does not matter. The ureter will not get damaged as it gets clamped along with the rest of the parametrium. A continuous urinary catheter has to be put in to keep bladder empty. If no flow of urine is seen, the clamps can be released after 20 to 30 minutes. Alternatively, if a portable scanning machine is available, one can scan the kidneys to see if the renal pelvis is getting dilated. In that case also the clamps can be released.

In case the patient has to be shifted to a higher centre, the clamps can be kept in situ. What is important is that the kidneys get perfused because the blood loss is prevented and blood pressure will be maintained. The Non pneumatic Anti

Shock Garment (NASG) can be applied with the clamp in situ.

Every labour room should have this set. The long retractors and sponge holding forceps will help in proper inspection of vagina and cervix even if it is a case of traumatic pph.(Fig.1)



(Fig.1.Transvaginal uterine artery clamp set.)

The suction cannula for vacuum assisted uterine contraction.

This is a very useful device to stop bleeding from the atonic uterus. The concept was brought to us by Dr. Samartha Ram. Later it was taken up by Dr. Vasudeva Panicker as well. Internationally, this concept is being promoted with some modifications. There is a sharp difference between the devices promoted in Kerala and the ones abroad. The negative pressure suggested by Samartha Ram and Panicker is about 600 mm of mercury, whereas the foreign studies recommend only 80 to 100 mm

of mercury. This needs further studies. Too much negative pressure for too long a period can lead to trauma and damage the tissues inside the uterus and there is concern whether this can lead to synechiae formation. Further studies are required. While using the suction cannula one has to make sure that the side holes on the cannula are above the level of cervix. If these holes are at a level below the cervix, enough negative pressure will not develop inside the uterine cavity. (Fig.2)



Fig.2.The suction cannula (Samartha Ram's model)

The suction cannula as well as the TVUAC can be complementary. If one fails, the other can take over. We have used TVUAC in more than 150 cases. There was no occasion to take a patient to theatre for further surgical procedures, after the clamps were applied.

4. Fourth stage management

Any patient after delivery should be observed for at least two hours to ensure that excess bleeding does not occur. Observing pulse and BP will not be enough. We recommend checking whether the uterus is contracted and if excess bleeding is seen between the thighs when the contracted uterus is gently pushed down. All too often, people rely on multi-parameter monitors that record the pulse and BP and ignore to look for contracted uterus and blood coming out of the vagina. This is all the more so in post caesarean patients.

What we insist on is to get these four points (pulse, BP, is uterus contracted, is blood flowing out of vagina) noted by the attending staff. We have these points printed on the postpartum observation chart to ensure compliance.

5. Primary PPH during Cesarean Section

When PPH occurs during cesarean section, aggressive approach is required. Active management of third stage of labour should be followed, just as after vaginal delivery. But the added step is to stop the bleeding that occurs from the uterine incision, especially if extension of incision occurs. A lot of blood can be lost between delivery of fetus and delivery of the placenta. Exteriorisation of uterus will not be easy with the placenta in situ. So we recommend the use of special clamps developed by us (Trans Abdominal Uterine Artery Clamps) to block the uterine arteries during cesarean section. (Fig 3 & 4) .



Fig.3. Trans abdominal uterine artery clamp



Fig 4. The clamps in use.

These can be applied even without dissection and pushing the bladder down. Even if the ureters are caught in the clamps no damage will occur. Once the bleeding is controlled and the blood is sucked out, the field will be clear to identify the torn vessels and tie them.

If there is atonic PPH during caesarean section, the same trans-abdominal uterine artery clamps can be applied bilaterally to arrest the blood flow through the uterine arteries. The ovarian vessel supplying the cornual region can be blocked, with the same clamp (Fig.5)

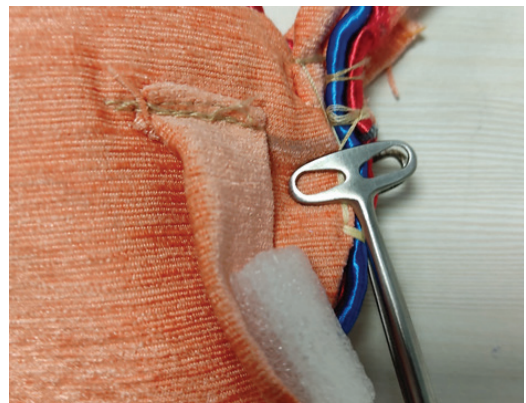


Fig.5. The vessels at the cornual regions can be blocked by the Trans Abdominal Uterine Artery Clamp

If the atonic PPH persists after the clamps are removed, already available steps like ligation of uterine arteries, ovarian branch ligation, B Lynch brace stitch modified by Hayman or even internal iliac artery ligation can be employed. After we started proper stepwise devascularisation, the need for internal iliac ligation for atonic PPH has almost disappeared. However, internal iliac artery ligation is needed for traumatic PPH that involves the lower segment, cervix or vagina.

If the bleeding is severe, for immediate arrest of bleeding another option is to exteriorize the uterus and clamp the lower end of aorta or both common iliac arteries

using the Paily clamp developed for operating on placenta accreta spectrum. (Fig.6). Once the bleeding is arrested, the operator gets time to resuscitate the patient and take further definitive steps.

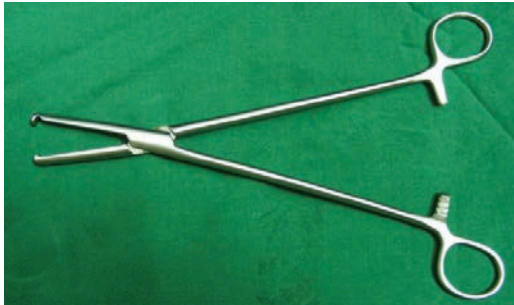


Fig.6.Aorta (common iliac artery) clamp

6.PPH due to Reactionary and Secondary haemorrhage after caesarean section

The confidential review of maternal deaths has shown a significant number of maternal deaths due to reactionary and secondary haemorrhage after caesarean section. This has direct bearing on the technique of caesarean section, especially the way the angle of uterine incision is closed. The most important safeguard seems to be the way the angles of uterine incision are closed. We recommend closing the angles with box stitch making sure that any torn vessel is included in the stitch.

7.Traumatic PPH, especially the ones due to instrumental deliveries

The PPH can be solely due to trauma to the genital tract or there may be a traumatic element in atonic PPH. Either way the same principle applies to traumatic PPH – stop the bleeding as quickly as possible. If there is pumping vessel, immediately apply an artery clamp to stop the bleeding or apply direct pressure with mop or pack.

Traumatic PPH can occur in spontaneous

labour or during instrumental deliveries. During spontaneous labour, the preventable trauma is the perineal laceration. Proper support during delivery of head as well as shoulder and timely and adequate mediolateral episiotomy are the possible preventive steps during spontaneous labour. But instrumental deliveries, especially forceps deliveries, are the ones usually blamed for genital tract lacerations. Proper selection of instruments and correct technique are the safeguards against these traumatic events. In this regard, use of the available obstetric forceps developed by Paily has relevance. The bigger and wider the forceps blades, more the chance for genital tract trauma. Paily obstetric forceps has thinner blades and reduced biparietal distance than the conventional forceps.

Tears on vagina or perineum should preferably be closed with interrupted absorbable sutures. Similarly, cervical tears also should be repaired with interrupted stitches. Always make sure that the apex of the wound is taken care of. The stitch should be tied above the apex so that any receded bleeder also will be taken care of. If a cervical tear extends cranial to the lateral fornix, the possibility of intraperitoneal bleeding also should be considered.

While taking stitches on the anterior and posterior walls of vagina take care that the stitches do not go very deep because of the risk of entering the bladder or rectum.

8.How relevant are the procedures like condom tamponade and Bakri Balloon?

After the arrival of the Transvaginal uterine artery clamps and the suction cannula, we seldom had an occasion to use the tamponade technique. Tamponade with distended condom or

Bakri Balloon may stimulate the uterus to contract. The pressure these devices exert may be adequate enough to stop bleeding from open placental sinuses but will not be adequate to stop arterial bleeding. However, a properly applied pack may help in cases of vaginal and cervical lacerations.

9. Tranexamic acid is now established as a useful adjunct to treat traumatic as well as atonic PPH. Giving 1gm tranexamic acid at the beginning of the PPH will help to reduce the blood loss.

10. Placenta Accreta Spectrum

With the rising caesarean section rates, placenta previa accreta spectrum is rapidly emerging as the leading cause of maternal mortality and morbidity. In almost all the cases the uncontrolled bleeding that ensues on attempted placental removal is the cause of the problem. But, with the use of the common iliac artery/aorta clamp (Paily clamp) this bleeding can be controlled. The scenario has totally changed now, converting many maternal deaths to near misses or even uneventful deliveries.

11. Blood and blood component use

No discussion on PPH is complete without considering the use of blood and blood products. If the bleeding is severe, massive transfusion protocol (MTP) should be initiated so that packed RBC and components like plasma, cryoprecipitate and platelets will be available seamlessly. In advanced centres cell salvage machines are used to recycle the lost blood. If facilities like thrombo elastometry are available one can find out which components are missing or present in excess. The component use will be more rational. In the absence of such facilities, periodic estimation of haemoglobin, fibrinogen, platelet count and coagulation studies

like PT, APTT and INR will have to be used.

12. Estimation of blood loss

Diagnosis of PPH depends on the amount of blood lost. It used to be a guess work often supplemented with visual images. Of late, direct measurement of the lost blood is recommended. Absorbent mats used under the buttocks and double sided mats over the abdomen in cases of caesarean section will help to know the amount of blood lost.

The increase in weight of the mat (in grams) between the pre and post use is used to calculate the amount of blood lost. This will be converted to volume of blood lost with the formula – 1gm weight gain is equal to 1ml blood lost. Appropriate allowances should be given for amniotic fluid as well as the blood in the suction bottle and the spilled blood on the floor.

CONCLUSIONS

Several developments have occurred in recent times to help the clinician in managing PPH. The cardinal principle is that one should anticipate PPH in every delivery and if diagnosed approach it aggressively to stop the bleeding immediately. New developments like the transvaginal uterine artery clamp and the suction cannula made it possible to stop bleeding immediately. Better understanding of blood and blood component use and its availability help the clinician to take a rational approach to PPH.

An Obstetric Covid patient



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Owing to the physiological changes in immune and cardiopulmonary systems, pregnant women are more likely to develop severe illness following infection with respiratory viruses. The infection with SARS-Cov (severe acute respiratory syndrome corona virus) and MERS-Cov (Middle east respiratory syndrome corona virus) and other viral respiratory infections, such as H1N1 influenza are associated with higher risk of severe illness, increasing morbidity and mortality when they occur during pregnancy, especially in third trimester. At present there is no evidence to suggest that pregnancy increases a woman's risk of acquiring covid-19 infection (SARS-Cov2). Fortunately, risk of severe illness is not found to be increased when compared with SARS, MERS and H1N1 influenza. Severe illness appears to be more common in later pregnancy. Usually viral pneumonia occurring in pregnant women is associated with increased risk of preterm birth, fetal growth restriction (FGR) and perinatal mortality.

The current recommendations are chiefly based on a small number of cohort studies. With accumulating experience in managing covid and similar pulmonary infections, expert consensus may change in future.

Despite inadequate evidence of serious complications in pregnancy, there have been sporadic reports of severe Covid infection in pregnancy requiring invasive ventilation and extracorporeal membrane oxygenation (ECMO). A case series of 43 pregnant covid infected pregnant women from New York showed similar pattern of disease severity as in non-pregnant adult women. (Mild – 86%, Severe – 9%, Critical – 5%). Most pregnant women who are infected with Covid-19 will experience only mild or moderate flu like symptoms. As per the PregCOV-19 Living Systematic Review (LSR) Consortium analysis published in September 2020 issue of BMJ, the most common symptom were fever (40%) and cough (39%). Fever with myalgia was less compared to non-pregnant women. The same report concluded that pregnant women are more likely

than non-pregnant women to require ICU admission (62% more) and invasive ventilation (88% more). The risk factors for severe infection were advanced age, higher BMI and preexisting hypertension and diabetes. This study was based on data from 77 studies involving 11,432 pregnant women (14 countries).

There has been no evidence regarding teratogenicity of the virus or association with increased miscarriage rates. The risk of preterm delivery was 17% as per PregCOV-19 LSR and 27% as per UKOSS (United Kingdom Obstetric Surveillance System). The higher preterm delivery reported in UKOSS was iatrogenic in 47% cases for maternal compromise and in another 15% for fetal compromise. The median gestational age at admission as per the UKOSS report was 34 weeks, 42% patients were discharged before delivery. The same study reported higher caesarean section rate of 59%. The PregCOV-19 LSR also reported a caesarean rate of 65%. There has been no evidence linking covid-19 with Fetal Growth Restriction. However the likelihood of FGR, in view of past experience with SARS, cannot be ignored. Hence an ultrasound is generally recommended 2 weeks after Covid negative status.

The management of Covid-19 infected pregnant women is predominantly symptomatic. If respiratory symptoms are present, Azithromycin and Oseltamivir are started, as coexisting H1N1 infection cannot be ruled out. Monitoring of respiratory rate and oxygen saturation is important in

symptomatic patients. The chest X-ray and CT should be performed as in non-pregnant and should not be delayed for fetal concerns (abdominal shielding may be used). An early involvement of multidisciplinary team is of paramount significance. The signs of decompensation include increase in oxygen requirement or $FiO_2 > 40\%$, respiratory rate > 30 , decrease in urine output and drowsiness (even if saturation normal).

Pregnancy is a hypercoagulable state. With emerging evidence that patients admitted with Covid-19 have an added risk of hypercoagulability, the risk of venous thromboembolism is multiplied. The reduced mobility from self-isolation at home or hospital admission increase the risk further. Prophylactic Low Molecular Weight Heparin (LMWH) should be given, unless birth is expected in 12 hours, and continued for 10 days after discharge.

Early use of steroids (Dexamethasone or Methyl prednisolone) may also be considered. In pregnant women consider early respiratory support and consider delivery if gestational age greater than 28 weeks. There is no contraindication for use of antepartum steroid for fetal lung maturation, but urgent intervention for birth should not be delayed for steroid administration. The diagnosis of pulmonary embolism must be considered in women presenting with chest pain, worsening hypoxia, or in women whose breathlessness persists or worsens after expected recovery from Covid-19.

The patients needing hospital admission should be admitted in isolation wards. The health workers should use appropriate PPE while attending patients. The general recommendation is to avoid induction of labour if possible and plan delivery after swab negative status. Expediting delivery may become imperative for obstetric indication or in critical cases to assist respiratory support. The best route of delivery is vaginal. Caesarean is indicated for obstetric indications or if respiratory condition demands urgent delivery. Anticipate the possible delay of donning PPE in an event of emergency caesarean section. Separate labour room and operation theatre should be used for Covid positive patients and suspects. Patients are advised to wear a surgical mask. The fetal heart rate abnormalities are more frequent in symptomatic patients, hence continuous electronic fetal heart rate monitoring is recommended in symptomatic patients. There should be only minimum staff in labour room and operation theatre, and negative pressure is ideal. For labour analgesia epidural is best, Entonox is not aerosol generating and can be used but with single patient microbiological filter.

There are only limited data on neonatal care. There is no contraindication for

delayed cord clamping and there is no need for early cleaning of the baby. The newborns need to be tested by RTPCR within 24 hours of delivery. We need to take an individualized decision concerning mother and baby separation and breast feeding. The main risk of breast feeding is close contact between the baby and woman. Most of the studies show that breast milk is negative for virus and benefit of breast feeding outweigh the risk of transmission of virus. Benefit and risk should be discussed with parents and an informed decision needs to be taken. While breast feeding, the mother should use a face mask and stringent breast and hand hygiene needs to be maintained. It is preferable to restrict visitors in the post-natal ward. LMWH should be continued for at least 10 days after delivery and the dose and duration should be adjusted based on risk score and maternal weight.

To conclude, though generally Covid-19 infection in pregnancy is mild and does not affect pregnancy significantly, the risk of severe infection is more in obese, elderly and in women with preexisting diabetes and hypertension. There is high morbidity and mortality in pregnant women with severe infection. Involvement of multidisciplinary team, early use of steroids and early respiratory support may help in reducing morbidity and mortality to a large extent.

Is Pre-eclampsia preventable?



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Preeclampsia (PE) is a pregnancy specific disorder occurring only in humans and high apes, characterized by development of hypertension, proteinuria and oedema. Sometimes this disease progresses to multi organ dysfunction, and further result in long term morbidities like chronic hypertension, diabetes and obesity.

As there is no other way than the allogeneic foetus to grow inside the mother, the immunological interactions between maternal immune system and allogeneic foetal proteins or cells, at utero-placental bed, and also at different systems of the mother with deported foetal proteins/cells are inevitable. For the same reason Pre-eclampsia cannot be preventable [4]. Maternal immune system undergoes adaptive changes to accommodate the allogeneic foetus. Preeclampsia results due to the failure of this accommodation mechanism at any stage of pregnancy. If we observe closely the clinical features, there are some apparent clinical features, and there are some hidden (silent) features in PE. Oedema, Hypertension and Albuminuria can be considered as apparent features. Utero-placental insufficiency and IUGR, renal dysfunction, Hepatic dysfunction, coagulation dysfunction, cerebrovascular dysfunction, i.e. imminent eclampsia, can be considered as hidden (silent) features.

We pickup apparent features during routine antenatal check-up. But, hidden features need special attention and investigations. In fact, we face serious problems with hidden features. Many times, for some reason or other, the investigations are not done for hidden features, and the diagnosis is delayed and we lose mothers.

Similarities between preeclampsia and other immunological disorders:

Atypical presentation is the hallmark of immunological disorders. If we observe immunological disorders like SLE, scleroderma, rheumatic fever, neuro syphilis, all of them are atypical in their clinical presentations. They need multiple criteria (major, minor or their combinations) for their diagnosis. Similar atypical presentations are also observed in PE.

Concept of multi-systemic involvements with unequal severity:

In all these immune disorders, multiple systems are involved, but their involvement is not of same severity. One of the systems might be leading and other organ systems might be lagging behind with different degrees of severity of involvement. In this process, some

of the systems might not be involved or skipping. Similar pattern of multi systemic involvement and skipping of involvement of systems can also be seen in preeclampsia.

Many studies have reported 40% of women with eclampsia have seizures at normal blood pressure and without proteinuria⁶⁹. Gestational hypertension may result due to the involvement of vascular system without the significant involvement of other systems. Isolated IUGR may also be due to the involvement of utero-placental system in a similar fashion. Many authors reported abnormal Sonographic liver findings consistent with sub-capsular hematoma prior to the clinical and laboratory findings of preeclampsia^{70, 71}. Even HELLP syndrome is classified as partial HELLP and full HELLP syndrome based on the number of systems involved⁷². All these observations indicate the atypical nature of PE, which is the hallmark of immunological disorders.

Immune mal-adaptation mechanisms result in excessive production of anti-angiogenic proteins like sFlt-1, and Sol. Endoglin, which leads to endothelial dysfunction both at utero-placental bed and also at different systems of the mother [4]. There is uncontrolled predominance of anti angiogenic factors in pre-eclampsia. Increasing levels of circulating sFlt-1 is observed with increasing severity of preeclampsia. sFlt-1 induces preeclampsia-like phenotype in experimental models [2].

Ravi Thadhani et al. reported extracorporeal removal of circulating sFlt-1 by 'Dextran-sulphate apheresis' reduces proteinuria and stabilizes blood pressure. By repeated Dextran-sulphate apheresis, they could continue pregnancies for a variable period of 1 to 3wks [9].

Buhimschi CS, Magloire L, Funai E, et al. reported, the anti-angiogenic protein sFlt-1 is excreted in urine. Urinary and fractional excretion of sFlt-1 is much higher among severe pre-eclamptic women, when compared to mild pre-eclamptic and normal pregnant controls [3].

Oral Hydration Therapy (OHT)

In our current study, we tested the hypothesis, that consuming plenty of oral fluids and producing a targeted urine output of more than 2500ml/24hrs may significantly reduce clinical symptoms and may also help to continue pregnancies to viability, as enhanced renal excretion of sFlt1 is possible. This is what we call as OHT.

In this case control study, pregnancy outcomes of twenty singletons early preterm (<34wks) pre-eclamptic women with hydration therapy (cases) were compared with twenty gestational age matched pre-eclamptic controls, that were treated conventionally without hydration therapy.

Hydration therapy: Women in 'cases group' were advised to take plenty of oral fluids and produce a targeted urine output of >2500ml/24hrs. Women were advised to pass urine in to the given measuring jar, and were advised to measure the urine output at every voiding. Total urine output from 7.00AM to 7.00AM next day (24hrs) was recorded.

Specially designed urine output chart (See Fig 1): Each digit on the column represents 100ml of urine output. The women were advised to measure the urine output at every voiding, and were advised to record on this chart. This

chart helps the woman to know the total urine output at any given time of the day, and also helps the woman to plan the amount of fluids that has to be taken further. This chart also helps the doctor to monitor the urine output easily by the patient.

Three litter bottle method: This is a simple and easily practicable method by field staff for larger population. Three litter bottles filled with water should be handed over to the mother at 7.00AM. She is advised to consume and finish this water before 7.00AM next day. No need to maintain the fluid output chart. This method is very useful for field staff and for low literate mothers.

Blood pressure was controlled with Cap. Nifedipine and T. Labetalol in adequate doses at required intervals in both cases and controls. Antenatal steroids were given whenever needed.

Results:

The Mean daily urine output in OHT group was 3692 ± 989 ml/24hrs (**Around 4Lit**). Mean gestational weeks that pregnancies could be continued in OHT group was 7.51 ± 5.2 wks, and in non OHT group it was 1.39 ± 1.2 wks (P Value 0.001)

MAP that was observed in OHT group (Cases) was 104.86 ± 6.72 (mmHg), and in non OHT group it was 115.99 ± 8.65 (P Value 0.000).

Urine albumin dipstick grade in OHT group was 0.63 ± 0.62 , and in non OHT group it was 2.15 ± 0.46 (P Value 0.000).

Mean oedema grade in OHT group was 0.34 ± 0.33 , and in non OHT group it was 1.37 ± 0.91 (P Value 0.000).

We observed the patient compliance for OHT is excellent. (<https://youtu.be/JjGTBG6UTc> Please see video)

Maternal outcomes:

Number of women that developed eclampsia in OHT group was 0, and in non OHT group it was 4 (P Value 0.000).

Imminent eclampsia in OHT group was 0, and in non OHT group it was 6 (P Value 0.000).

Severe PIH in OHT group was 0, and in non OHT group it was 5 (P Value 0.000).

Number of IUFDs in OHT group was 1, and in non OHT group it was 6 (P Value 0.000).

No of mothers that took babies home in OHT group was 19, and in non OHT group it was 14 (P Value 0.000)

Neonatal outcomes:

The number of babies that developed respiratory distress (RD) in OHT group was 1, and in non OHT group it was 10 (P Value 0.000).

Mean NICU admission days in OHT group was 0, and in non OHT group it was 8.36 ± 7.04 days (P Value 0.000).

Mean birth weight in OHT group was 2.54 ± 0.76 Kg, and in non OHT group it was 1.68 ± 0.53 Kg (P Value 0.000).

S. Electrolytes: Serum sodium levels in OHT group were 139.77 Mean \pm Sd 2.66 m mol/L, and in non OHT group it was 138.48 ± 1.60 m mol/L (P Value 0.072).

Mean serum potassium levels in OHT group was $4.09.77 \pm 0.15$ and in non OHT group it was 3.97 ± 0.38 (P Value 0.201).

Likely mechanism for oral Hydration therapy:

Pathophysiology of preeclampsia include, diminished blood volume, hemo-concentration, diminished tissue perfusion, and vasospasm. Uncontrolled raise of anti angiogenic factors Sflt-1 and Sol Endoglin are responsible for endothelial dysfunction, which in turn results in the clinical features.

In OHT, the fluids continuously enter in to vascular compartment from G.I tract. This increases blood volume and haemo-dilution. Increased blood volume increases renal, utero-placental, and

other organ perfusion. This results in increased urine output which further results in increased excretion of Anti-angiogenic protein sFlt-1. This leads to reduction in blood levels of sFlt-1 and reduction of endothelial dysfunction. By all these mechanisms, Hydration therapy breaks the vicious cycle of pathophysiology of preeclampsia. This could be the reason for our excellent results.

WHY OHT IS SUPERIOR TO ASPIRIN IN PREVENTING PE?

Aspirin blocks cyclo-oxygenase, and prevents platelet adhesion, and prevents blood clotting. This prevents hypercoagulability of blood (blood thinning effect) of pregnancy, which maintains tissue perfusion.

But unlike OHT, Aspirin cannot improve blood volume, cannot correct hemoglobin concentration, and cannot facilitate sFlt-1 excretion by kidneys. OHT attacks the fundamental and basic pathology of preeclampsia. For the same reason OHT is superior to Aspirin to prevent severe PE and Eclampsia.

Pilot Project: In Chittoor district of AP we have introduced 'Oral Hydration therapy' (OHT) along with SR PPH Suction Cannula on 1st August 2018.

Medical officers were advised to recommend OHT (taking >3 liters of water a day) to all women after 24 weeks of gestation. Field staff, ASHA workers and ANMs were assigned the job of OHT.

Results of 2year study:

In the year 2017-18, in the entire district 58,683 births occurred. Total number of maternal deaths that occurred was 47. Preeclampsia related deaths were 16. (Total 47); **MMR 83/1 lakh births**

In the year 2018-19, 60,101 births occurred. The number of total maternal deaths was 30. Preeclampsia related deaths were 10. In these 10 women OHT was not used. **MMR 50/1 lakh births**

In the year 2019-20, 61,464 births occurred. The number of total maternal deaths was 20. Preeclampsia related deaths were 9. In these 9 women OHT was not used. **MMR 32.5/1 lakh births.**

We observed a rapid fall in MMR from 85 in the year 2017-18 to 32.5 in the year 2019-20. These results are due to the combined effect of using SR PPH Suction cannula for PPH and OHT for PE. Now, SR PPH Suction cannula and OHT were introduced in 5 districts (Anantapur, Cuddapaha, Kurnool, Chittoor, and East Godavari) of AP. Very drastic reduction in MMR is being observed.

We are using Oral Hydration Therapy (OHT) for our antenatal mothers since 15 years at our hospital. We didn't have a single case of eclampsia for 3600 deliveries during these 15 years in our booked cases.

Conclusion:

By just making the woman to consume more than 3 liters of water (or urine output more than 2.5liters) per day after 24wks of pregnancy, it is possible to prevent severe PE and Eclampsia. This intervention is very simple, very effective, and does not cost anything, and with very good patient's compliance. Though Preeclampsia cannot be preventable, it is possible to prevent severe PE and Eclampsia. PPH and PIH are the two major causes for maternal deaths. The two interventions, SR cannula and OHT if practiced all over the country, the MMR will come down very significantly in a short time. FOGSI should take initiative in this direction.

(The information presented in this write-up is from my published papers).

Examination of an SOS in the ER

THE POCSO ACT



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Sexual offence towards a minor is one of the most heinous act ever towards mankind where the affected not only suffers at the hands of the perpetrator but is also physically, psychologically, socially and legally unaware of the implications and the long term effects. Child Sexual Offences are seen to occur in all age groups, in all socioeconomic classes and nearly in all countries with differences in magnitude. The prevalence of child sexual abuse in India is known to be high. A survey by the National Crime Record Bureau in 2018 revealed that as many as 108 children were sexually abused every day in India .

A National study on Child Abuse conducted by the Ministry of Women and Child Development (MoWCD) showed more than 53% children across 13 states reported facing some form of sexual abuse while 22% faced severe sexual abuse. Both girls and boys face abuse .

WHO defines Child Sexual Abuse as 'Involvement of a child in sexual activity that he or she does not fully comprehend, is unable to give consent or for which the child is not developmentally prepared and cannot

give consent or that violates the laws or social taboos of society.' Sexual Abuse includes an array of sexual activities like fondling, inviting a child to touch or be touched sexually, intercourse, exhibitionism , involving a child in prostitution or pornography or online child luring by cyber predators.

Sexual abuse has profound consequences on the child. It has been linked to maladaptive health behaviour leading to poor social, mental and physical health outcome throughout the lifespan. Adult survivors of child sexual abuse face relationship challenges. They also have a higher risk of perpetration of child sexual abuse as an adult. Even in a state like Kerala which takes lead in addressing women's safety and gender issues as well as health care, the justice rendered to the survivors of sexual offences is appalling. The main reasons are

- 1) Hostile and coercive surroundings deterring the survivor from timely legal and medical recourse.

- 2) Lack of knowledge about currently relevant laws among medical fraternity as well as the police.

3) Lack of confidence building environment and professional approach to the collection and recording of medical evidences vital for ensuring justice.

4) Non reporting - Ninety percent of the perpetrators are known to the survivors of sexual offence. Seventy percent of them preferred not to report to anyone regarding their victimisation.

5) The huge stigma associated with disclosure of abuse .

It was this scenario that prompted the Government Of Kerala to develop "The Kerala Medicolegal Code " which was implemented in 2011 vide GO(MS) 232/11/ Home K dated 22/10/2011. Meanwhile, the Criminal Law Amendment Act 2013 and the POCSO Act 2012 came into being and there was a need for amending the relevant parts of the code and developing a reporting format with guidelines for examination of survivors of sexual offences. Thus in 2014, the National Health Mission , Kerala constituted a committee for developing the reporting format and guidelines for this purpose for implementing in the state in conformity to the legal provisions in relation to the examination and the directions in the judgements from the Hon ble Supreme Court and High Courts in this regard.

The child is the responsibility of the state

The Prevention of Child Sexual Offences Act 2012, was enacted by the Government of India in 2012. It aims to provide a robust framework to protect children from offences of sexual assault, sexual harassment and pornography, while safeguarding the interest of the child at every stage of the judicial process. It also makes provision for

avoiding revictimization of the child at the hands of the judicial system

The act defines a child as any person below 18 years. It is gender neutral.

The POCSO act makes it mandatory to report all cases of sexual abuse. It is the legal duty of a person aware of the offence to report the sexual abuse. If he fails to do so, the person can be punished with 6 months of imprisonment or fine. The Act further states that evidence of the child should be recorded in 30 days. The special court taking cognizance of the matter should be able to complete the trial within a period of one year from the date of taking cognizance of the abuse. It also provides that the special court proceedings should be recorded in camera and the trial should take place in presence of parents or a person in whom the child has trust or confidence. When an offence under this act is committed by a child, such a child shall be dealt with under the provision of the Juvenile Justice (Care and Protection of Children) Act ,2000 (Section 34)

The POCSO Act amendment bill was introduced in July 2019 by the Ministry for Women and Child Development Dr Smriti Irani. According to the amendment, the minimum punishment has been raised from seven to ten years. It further added that if a person commits penetrative sexual assault on a child below 16, he/she will be punishable with imprisonment between 20 years to life time, with a fine.

CHILD FRIENDLY PROCEDURES UNDER THE POCSO ACT 2012

POCSO Act safeguards the rights and dignity of the child at every stage of the legal process. It provides for child-friendly procedures for medical examination; recording the statement of the child by the police and magistrate; as well as during the examination of the child in court.

- (i) The Act also mandates establishment of child-friendly Special Courts in every district (Section 28).
- (ii) Appointment of a Special Public Prosecutor (Special PP) for every Special Court for conducting cases only under the provisions of POCSO Act (Section 32).
- (iii) The Special Court shall create a child-friendly atmosphere and allow the child to be accompanied by a family member, guardian, friend or relative in whom the child has trust or confidence to be present in the court (Section 33).
- (iv) The child must not be brought face to face with the accused while giving her/his statement to the Police or the Magistrate, or while testifying (Sections 24 and 36).

SECTION 357 OF IPC:

Section 357 of the criminal law amendment act mandates that both public and private hospitals provide immediate post aid or medical treatment free of cost of survivors of sexual assault. This cannot be denied for want of a police requisition. Refusal to provide treatment and medicolegal examination is a punishable offence under section

166B of IPC. This is a part of their corporate social responsibility.

Standard operating procedures for examination of a child sexual offence survivor

Truly compassionate approach by all staff.

Immediate lifesaving treatment.

Medicolegal examination under adequate privacy as per protocol.

Appropriate medical management.

Appropriate psychological care.

Prophylactic measures whenever necessary.

Follow up care

a. The hospital should have adequate stock of formats, facilities and materials for medicolegal examination

b. There should be no delay in conducting the examination and collecting evidence. Medical examination of child sexual offence survivors is considered a medicolegal emergency.

c. Ensure adequate privacy and confidentiality during the whole process. A separate room labelled "Examination Room" preferably bath attached to be made available near the casualty where the sexual offence survivors and her guardian can be allowed.

d. An examination table preferably one where the sexual offence survivors can be examined in lithotomy, knee elbow and lateral position.

e. All equipment for a thorough examination and facilities for collection and preservation of

samples including blood and urine(in case of intoxication with drugs or alcohol) till the paper work is completed by the police for despatch to the Forensic Science Lab. Cotton, glass slides etc and a metallic seal for affixing on the melted wax on the different sized bottles and packets forwarded for chemical analysis .

- f. 4 sets of unused coloured readymade dresses to be kept ready for use if needed.
- g. All services rendered to be free of cost including the investigations and medicines.
- h. Police personnel must not be allowed inside the examination room. Identity of the sexual offence survivors should not be disclosed except to the Investigating officer/ Honourable court.
- i. A copy of the Kerala Medicolegal Protocol for examination of survivors of sexual offences 2019 , Kerala Medicolegal Code 2011 and a copy of the Guidelines and Protocols – Medicolegal Care for Survivors / Victims of Sexual Violence issued by MOHFW, Govt of India or WHO for reference to be made available at the casualty of every institution.
- j. Details of the Child Welfare Committee and the SHO of the nearest police station with contact numbers and email id should be readily available to doctors who conduct the examination.

Regarding authorisation to examine a child survivor of sexual offence, the examination shall generally be conducted by a female gynaecologist. However, in situations where a female

gynaecologist is not available within a reasonable time and referral to a female gynaecologist is not possible due to medical emergencies or nonavailability of transport, a female registered medical practitioner can examine. The doctor shall examine the survivor irrespective of whether he/she is brought with or without a requisition for examination.

CONSENT:

For medicolegal examination of sexual offence survivors, the age of consent is 18 years (section 41 of POCSO Act), as section 2(d) of act defines a child as any person below 18 years. As the rights of a child should be honoured, any child above 12 years can consent understanding the nature and consequences of the procedure, but it should be consented by the parent or guardian as well.

History taking of a child sexual offence survivor:

TRUST THE CHILD.

The child needs very sensitive handling to reduce self-blame and enhance self-healing for the survivor. The medical practitioner should create an environment of trust showing utmost sympathy and compassion. Relatives maybe allowed during history taking if the child is comfortable. Multiple sittings may be needed and in certain situations, the help of an expert may be sought. Place of recording of the statement will be of child's choice and comfort. The police officer recording the statement must not be in uniform and also make sure that at no point of time ,the child comes in contact with the offender. No child shall be retained in the night for any reason. The court may permit

frequent breaks for the child during trial. The court shall not call the child repeatedly to testify.

The history should be obtained in the survivor's own words, in all possible instances and should be recorded as such. State of consciousness and orientation of time and place at the time of assault and also history of drugs and alcohol before or during the assault should be enquired.

Medical examination of a sexual offence survivor:

The health professionals play a dual role in responding to the survivors of sexual assault. The first is to provide the required medical treatment and psychological support. The second is to assist survivors in their medicolegal proceedings by collecting evidence and ensuring a good quality documentation. Few considerations with legal binding on medical practitioners are:

- 1) In all situations where a survivor is brought in a life threatening condition the first and foremost duty is to save life even if he cannot undertake a medicolegal examination.
- 2) All cases of rape reported to hospitals shall be informed to the police immediately as per section 357(C) of the code of criminal procedures. Section 19 of the POCSO also mandates immediate police intimation by any person who has knowledge that such an offence has been committed or apprehension that such an offence is likely to be committed.
- 3) As per section 166B of IPC and 21 of POCSO, non-intimation by the doctor or by the person having charge of the hospital has been made a criminal offence punishable

with imprisonment upto a term of one year.

- 4) Explanation of amended (2005) section 53 of the code of criminal procedures has included the examination of blood, sweat, semen, nails and all such biological material objects as a part of the examination thereby making the collection of relevant material objects a legal responsibility of the doctor. With this amendment, separate consent for collection of material objects is NOT necessary.
- 5) When a medical witness is called as an expert he is not a witness of fact. The value of the medical evidence is only corroborative. It is an evidence of opinion only and not of fact.
- 6) As most cases are reported after a delay there is a possibility of positive findings becoming nil with passage of time. The reporting format of the preliminary report in the Kerala medico-legal protocol has a structure clearing all ambiguities regarding opinion and inconsistencies with the definition of medical evidence.

A child survivor shall only be examined in the presence of a parent or any person in whom the child reposes trust or confidence. If the parent or such a person cannot be present for any reason, the examination shall be conducted in the presence of a woman preferably a female staff nurse nominated by the head of the institution. A SAFE kit was designed in conformity to the steps of examination of the survivor as prescribed by WHO guidelines. The Kerala Medical Services Corporation Ltd manufactures the SAFE kits on a commercial basis. Guidelines to the heads of institutions with the objective of enabling the undertaking

of examinations smoothly and ensuring adequate care and protection to the survivor are also incorporated. While examining a child survivor within 24 hours of the stated sexual assault and also if she hasn't changed clothes or taken bath or washed the area since the assault, it is ideal that the survivor stands on a large clean paper spread on the floor and undress herself (as available in the SAFE KIT). This is for collecting and preserving possible material evidence of the perpetrated crime.

General examination should include the level of consciousness, pulse rate, blood pressure, signs of intoxication, the clothing worn, any tears or stains.

Examination for injuries should be tailored according to history, the nature of assault and time lapse between the occurrence of the crime and the point at which examination has been done.

The entire body has to be carefully examined for bruises, abrasions, bite marks, cuts, lacerations and stains.

Local examination should include the vulva for injuries, seminal stains and stray pubic hair. Pubic hair has to be combed for evidence of foreign hair strands. Labia majora, minora, fourchette, introitus, hymen and vagina have to be inspected for bleeding, tears, bruises and abrasions. Good light or magnifying glass if necessary, must be used. Two swabs each for trace evidence are to be collected. If tears are not visible, 1% Toluidine blue can be used to visualise them. A colposcope should be made available if possible. Foetal blood or products of conception should be preserved in saline for DNA profiling.

An examination under anaesthesia may be needed in young girls and when injuries are of a severe nature. Swabs are air dried. Vaginal washings may be taken after instilling 2-3ml saline into vagina.

Material evidences are numbered. Numbering on individual packets should correspond to numbering in the requisition form.

With a view to fool proofing the contents of the reports, the Medicolegal report format has been drafted and filling the columns in each page itself has made it provider friendly. In addition , all possible findings were provided against each column so that the doctor can choose the correct one and strike off the others. This reduces subjectivity and ensures better documentation fulfilling the requirements of law. Diagrams have also been provided to facilitate representation of injuries.

The report is handwritten in this format in triplicate with the original detached and issued to the Judicial/ Police Officer, the duplicate issued to the survivor and the triplicate retained as office copy.

Apart from medico-legal examination, it is the responsibility of the registered medical practitioner to provide comprehensive medical care to the sexual offence survivor. This should include post-exposure prophylaxis for STIs (Doxycycline + Metronidazole) and HIV after assessing the risk, Hepatitis B immunoglobulin and Tetanus toxoid injection. Emergency contraception should also be provided. Follow up is mandatory for all survivors with a urine pregnancy test, serological test for syphilis and psychological care.

PROTECTION OF CHILD VICTIM

On reasonable grounds , Special Juvenile Police Unit or Local Police after recording in writing , such children shall be provided with care in protection homes within 24 hours of the report. In case a child has been abused by a family

member, then he / she must be taken out of the custody of his / her family. (Rule 4 of POCSO Rules).

MEDICOLEGAL REPORTING

When a medical witness is called in as an expert, he is not a witness of fact. Medical evidence of an expert is evidence of opinion. Opinion should be furnished by taking the history and findings of examination together into consideration. In all situations where positive findings like injuries corroborating the history of stated sexual assault are present, opinion that the findings are consistent with the history of stated sexual assault should be furnished. In situations where there are no positive findings due to any reason like the stated sexual assault is of a type where no findings can be expected, delayed examination etc, opinion that the findings are not consistent with the history of stated sexual assault should be given. Whenever there are injuries on the body which could be caused as stated in the history, opinion that the injuries could have been caused as stated should be furnished. In such a case, opinion regarding the age of injuries and whether the age of injuries is consistent with the stated time of occurrence should also be added. Opinions pending reports of chemical analysis or forensic examination should be noted in the column provided. Opinion regarding recent vaginal or anal intercourse should be based on detection of spermatozoa in the vagina or anus respectively. This and any other opinion which was reserved pending results of analysis of material

objects should be furnished as the final opinion in the prescribed format. Reason for each conclusion arrived should be recorded in the column provided on the basis of points from history and findings from examination. Reasons for absence of injuries or findings like delay of weeks or months in reporting for examination etc should be recorded. The original report should be issued to the investigating officer with name designation and signature of the issuing as well as the receiving officer recorded in the column provided with duplicate and triplicate carbon copies of the same issued to the survivor and filed as office copy respectively. The report of the examination shall be issued with a maximum time limit of 48 hours. Whenever the examination is conducted on the written requisition from a judicial or police officer, the report should be issued immediately to the investigating officer.

REFERENCES

- 1) MoHFW GOI : Guidelines & protocols - Medico-legal care for survivors / victims of sexual violence- May 2019
- 2) Kerala Medico-legal Protocol for examination of survivor of sexual offences- 2019
- 3) The POCSO act 2012
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Impact of Obesity in Obstetric Practice



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Pregnancy in Obese Patients and its Problems

The WHO says that Obesity has become a Pandemic all over the Globe, in both developed and underdeveloped Countries.....reasons are not far to seek, the ready availability of cheap, tasty high calorie, low nutritional value "Junk Food", Household gadgets which have made life easy and women lazy ,are just a few causes. In our State, obesity is considered a sign of prosperity....if a newly married girl , does not bloat up , after marriage, there are questioning looks and snide remarks, about her possible unhappiness in her new home. In the National Health Survey, it is noted that in Kerala, women increased by in weight rapidly from 28% to 32% in obese category.

Reasons may be:

Education and Employment of women, mostly having sedentary jobs

No Exercise, either at home or in office

Eating patterns...more fast food, less fibre rich foods

Familial Fatty body structure

Endocrine causes (eg Hyperadrenocorticism, Hypogonadism, Hypothyroidism)

Maternal obesity has become one of the most commonly occurring risk factors in pregnancy. It brings with it the sequelae of GDM, Pre Eclampsia and Congenital anomalies in the offspring.

It is better not to quibble over who is obese or not. The RCOG guidelines recommend measuring the BMI (Wt in KGs/ Height in metre squared) at the 10th week of pregnancy for all patients, attending Antenatal Clinics. Body weight .20% the normal weight for optimal height is considered obese.

The three different classes of Obesity are

Class I BMI 30 to 34.9

Class II BMI 35 to 39.9

Class III BMI >40 (morbid Obesity)

Pre Pregnancy Care :

The idea of having a healthy body weight should be instilled into the girls, right from adolescence. Fat girls grow up to be

fat women and have increased chance of Infertility and PCOS.

Ideally, Primary Health Care Services should ensure that all women of childbearing age have the opportunity to optimise their weight prior to pregnancy. Pre Pregnancy counselling and awareness about the increased risk of miscarriage, Diabetes and Pre Eclampsia should be advised. Inter pregnancy weight reduction among women with obesity, at least 4.5 Kg before the second pregnancy can reduce the risk of developing GDM by 40%.! All women with a BMI > 30%, who wishes to become pregnant should be given prenatal Folic acid 5 mg supplementation daily, one month before conception and all through the first trimester to avoid NTD and other congenital malformations. Very obese patients may take medications to reduce their weight, or undergo surgeries, like bariatric surgery. However, pregnancy should be deferred for at least 1-2 years after surgery, as the sudden decrease in weight takes place during that period and may adversely affect the foetus.

First trimester of Pregnancy:

BMI measurement at the 10th week of pregnancy will help to identify the Obese Gravidas. Our Indian garments like sari and Loose kameez, purdah etc give a false impression of the actual weight of the lady. So weight has to be measured and BMI calculated. Weight should be ideally measured with a beam balance type of weighing machine, rather than the bathroom scales type, which is inaccurate. It should be noted in their hand held cards, as well as electronic data. All those with BMI >30 are to be given Folate 5 and Vit D3 10 mcg daily supplementation. These women should be given appropriate information sensitively and offered ideal diets with plenty of green vegetables, pulses, small

fish and fibre rich food grains. They should be advised to drink plenty of water and have small meals at intervals, to defuse their hunger pangs. Daily walking and other forms of exercise should be encouraged. Professional advice in early pregnancy will deter sudden weight gain, especially as relatives and friends tend to shower the pregnant girls with sweet meats, especially in Kerala, as it is considered a tradition.

The patients should be advised about the ideal weight gain plan:

Normal Person (BMI 18 to 24.9) gain of 11.5 to 16 kg

Overweight (BMI 25 -29.9) gain of 7 to 11.5 Kg

Obese (BMI 30 and above) gain 7 kg or less.

Risk in early pregnancy is mainly : Miscarriage. Aspirin 75 mg can be started .and other supportive medicines like Progesterones can be given, if required. Thrombo embolism risk should be noted in early pregnancy and if there are two or more additional risk factors, she should be considered for LMVH. Compression stockings for the legs would be helpful.

Second Trimester of Pregnancy:

This is the time when Pre Eclampsia and GDM make their entry, so there should be regular monitoring of BP and GRBS.

There should be an extra large cuff for measuring BP in obese patients (18x36cms) Less error is there, even if the cuff is a bit too large.. A booking BMI of > 35 doubles the risk of Pre eclampsia. FBS, PPBS and DIPSI are to be done repeatedly to rule out GDM, at least on a monthly basis. Insulin therapy should be started if required.

PRECOG Guidelines states that :

*Women with a booking BMI of a 35

or more , along with an additional risk factor, (first pregnancy, previous history of PE, 10 years gap between last delivery, GDM, etc) should be referred for specialist care early in pregnancy.

* Those without additional risk factors can be monitored at 3 weekly intervals between 24 to 32 weeks GA and two weekly intervals between 32 and 34 and weekly upto delivery.

USG is difficult due to the opaque planes created by the fat obscuring the acoustic window deposits and very often congenital anomalies may be missed.

Third Trimester of Pregnancy:

Close monitoring is required to avoid complications. There is greater risk of IUF demise in Obese patients. It is recommended that they should be delivered around 38 weeks to avoid intrapartum complications. Discussion should be with the patient , relatives and a multi disciplinary team regarding mode of delivery .They should be aware of the difficulty of fetal surveillance in labour, shoulder dystocia and fetal asphyxia.

It is better to have an Anaesthetic check up for all obese patients, it is desirable to have an experienced (6years at least) to assess the patient. It may be difficult to position the patient for epidural and sometimes it may fail to act. General anaesthesia carries greater risk of complications in obese pregnant women, especially bronchospasm during intubation.

Then, there are the practical problems, which have to be addressed....large labour cot, adequately large OT Table, accessibility through doorways and staff who can tackle such huge patients.

Intrapartum :

This is the most trying time. Labour is usually slow and prolonged. CTG monitoring is difficult due to the layers of fat. Difficult to palpate the parts and predict the descent of head etc, The risk of shoulder dystocia, the inaccurate fetal weight due to difficulty in doing USG accurately , may also take the obstetrician unawares. All preparations to resuscitate the new born, alert the Neonatologist and keep all paraphernalia ready. The probability of PPH is also high, so availability of crossmatched blood, all the kits to deal with PPH should be within reach.

In Case of Caesarean, it is technically more difficult and good theatre staff should be available.

In short : Maternal complications are : Miscarriage, DVT, GDM, PE, Prolonged Labour, PPH, Instrumental and Operative deliveries, Anaesthetic Risks, Delayed wound healing, later on Diabetes , Hernia etc.

Fetal Complications are : NT defects, IUGR, Macrosomia, IUFD, Birth Trauma, Hypoglycaemia.

Post partum:

More chance for wound dehiscence and infection. Lactation failure is also common. Those with Obese GDM have increased risk of developing Type 2 Diabetes. All women with BMI >30 should undergo a GTT after 6 weeks of delivery.

If planning to deliver again, strongly advice weight loss measures, before embarking on another adventurous pregnancy again!!

Recurrent pregnancy loss(RPL)



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Definition of RPL

A pregnancy loss is defined as spontaneous demise of a pregnancy before fetus reaches viability

Recurrent pregnancy loss is defined as loss of two or more pregnancies

Primary RPL is defined as RPL without a previous ongoing pregnancy beyond 24 weeks gestation

Secondary RPL is defined as an episode of RPL after one or more previous pregnancies progressing beyond 24 weeks gestation

Prevalence of RPL-the exact prevalence is difficult to estimate .it is reported in approximately 1-2% of women

Psychological impact of RPL-Recurrent pregnancy loss is a significant negative life event and repetitive nature intensify the grief experienced by the women and her partner.so clinicians and clinics should take the psychosocial needs of the couple into account when organizing care for these couples

Risk factors for RPL

1. AGE-Risk of pregnancy loss is lowest in women aged 20-35 years and rapidly rise after the age of 40
2. STRESS-is associated with RPL but there is no evidence that stress is a direct cause pf pregnancy loss
3. SMOKING-has a negative impact on chances of live birth and therefore cessation of smoking is recommended
4. MATERNAL OBESITY-BMI >30kg/m² has been evaluated as risk factor for RPL.So striving for a healthy normal range BMI is recommended
5. ALCOHOL-excessive alcohol consumption is a possible risk factor for pregnancy loss and proven risk factor for fetal problems(fetal alcohol syndrome)

Investigations in RPL

Medical and family history can be used to tailor diagnostic investigations in RPL

1. screening for genetic factors
-Aneuploidy is a recognized

cause of early pregnancy loss and frequency increases with female age. Genetic analysis of pregnancy tissue provides the patient with a reason for pregnancy loss and may help to determine whether further investigations or treatments are required. No clear effect of genetic test of pregnancy tissue on prognosis has been described so far. So genetic analysis of pregnancy tissue is not routinely recommended. For genetic analysis of pregnancy tissue array CGH is recommended because of reduced maternal contamination

2. parental genetic analysis-Abnormal parental karyotype is found in 1.9% of RPL. Subsequent miscarriage rate is higher and live birth rate is lower in carrier couples
3. Thrombophilia screening-
Thrombophilia is a hereditary or acquired condition which predisposes women to venous thromboembolism

Hereditary thrombophilias are Factor V Leiden mutation, Prothrombin Mutation, Protein C, Protein S and Antithrombin deficiency and MTHFR (methylene tetra hydrofolate reductase) mutation. Recommendation is not to screen for thrombophilias in RPL unless there are additional risk factors

Acquired thrombophilias refers to Antiphospholipid antibody syndrome which is diagnosed based on presence of antiphospholipid antibodies and vascular thrombosis and/or pregnancy complications. Three clinically relevant and well characterized antibodies are lupus anticoagulant (LA), anticardiolipin antibodies (ACA-IgG and IgM), and Beta 2 glycoprotein 1 antibodies

The Miyakis criteria, an update of Sapporo classification of 1999 have been determined by consensus

Screening for LA, ACA IgG and IgM is recommended for screening after 2 pregnancy losses

Thyroid screening is recommended (TSH and anti TPO ab) is recommended in women with RPL and abnormal test should be followed up by T4 testing in women in RPL

All women with RPL should have an assessment of uterine cavity

The preferred technique to evaluate uterus is TV 3D US which has high sensitivity and specificity which can distinguish between septate uterus and bicornuate uterus with normal cervix (former AFS bicornuate uterus)

Sonohysterography is more accurate than HSG in diagnosing uterine anomalies

If Mullerian malformation is diagnosed further investigation of kidneys and urinary tract should be considered

Treatment Options in RPL

Women with history of second trimester pregnancy losses and suspected cervical insufficiency should be offered serial sonographic surveillance

In women with singleton pregnancy and a history of recurrent second trimester loss attributable to cervical weakness, a cerclage can be considered. There is no evidence that this treatment increases perinatal survival

Hysteroscopic treatment of a symptomatic septate uterus can be accomplished by using hysteroscopic scissors or resectoscope. There is no evidence to elect one method over other. Although there is a reduction in miscarriage rates, surgery has a negative impact on fertility. For those becoming pregnant there is a reduction in miscarriage rate (vontrouli et al 2002)

Metroplasty is not recommended for bicornuate uterus

All couples with abnormal fetal or parental karyotype should receive genetic counselling. This includes a detailed family history, drawing up a

pedigree and estimating a recurrence risk of genetic disorder. In couples who are carriers of balanced translocations option of donor gametes for IUI or IVF should be considered

Preimplantation genetic testing for aneuploidy (PGT-A) where an ivf cycle creates embryos which are biopsied and screened for chromosomal anomalies prior to implantation has been proposed as a potential treatment for RPL. Clinical outcomes improved in RPL couples undergoing IVF PGT-A compared with expectant management

For women who meet criteria of APS and h/o three or more pregnancy losses low dose aspirin (75-100mg/day) starting before conception and prophylactic LMWH starting at date of positive pregnancy test

Overt hypothyroidism arising before conception should be treated with levothyroxine. There is conflicting evidence regarding treatment effect of levothyroxine in women with subclinical hypothyroidism and RPL. Treatment of women with subclinical hypothyroidism may reduce risk of miscarriage, but potential benefit of treatment should be balanced against risks. If women with thyroid autoimmunity and RPL are pregnant again, TSH level should be checked and hypothyroidism should be treated with levothyroxine

Preconceptional counselling in women with RPL should include advice to consider prophylactic Vitamin D supplementation

There is insufficient evidence to recommend use of progesterone to improve live birth rate in RPL

There is insufficient evidence to recommend intralipid therapy for

improving live birth rate in women with RPL

Intravenous immunoglobulin is not recommended for treating unexplained RPL

In male partner it is suggested to assess life style factors like smoking, alcohol consumption exercise pattern and body weight and advised cessation of smoking, maintaining a normal body weight and a normal exercise pattern. There is moderate evidence indicating association between RPL and elevated DNA fragmentation. Antioxidants for men have not been shown to improve chance of live birth

RPL clinic

A dedicated RPL clinic led by a consultant along with psychologist and counsellors to give specialist care to the couples with recurrent miscarriages should be organized. Clearly written leaflets are recommended to provide information about investigations and treatment strategies. Tender loving care is one of the common and accepted treatments especially in idiopathic RPL. Women who received specific counselling and support had better pregnancy rates

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STERILIZATION AND DISINFECTION IN ENDOSCOPY



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Laparoscopic surgeries are becoming more and more common since more than two decades. A major risk of all such procedures is the introduction of pathogens that can lead to infection. Failure to properly disinfect or sterilize equipment carries risk for person-to-person transmission (e.g., hepatitis B virus) and transmission of environmental pathogens (e.g., *Pseudomonas aeruginosa*.)

The laparoscopic instruments are more complex in design and yet delicate in construction. Thus the laparoscopic instruments are more vulnerable to lodging of bio burden (micro-organisms and debris) within their crevices. Laparoscopic instruments are difficult to clean, sterilize adequately and maintain as compared to their counterparts used in open surgery

Factors that affect the efficacy of both disinfection and sterilization

- Prior cleaning of the object | Organic and inorganic load present
- Type and level of microbial contamination
- Concentration of and exposure time to the germicide

- Physical nature of the object (e.g., crevices, hinges, and lumens)
- Temperature and pH of the disinfection process

Cleaning, Disinfecting, and Sterilizing of Endoscopic Instruments

The initial and most important step of reprocessing is thorough cleaning to remove gross soil, including microorganisms (bio burden), which allows the disinfectant or sterilizing agents to work effectively. Organic materials may inactivate these agents or present a barrier that prevents disinfectants from reaching all surfaces of an instrument. Manual cleaning is the safest method to use for rigid and single-lumen flexible endoscopes and accessories.

Ultrasonic washers can damage and loosen small joints and remove adhesives and lubricants.

Enzymatic detergents are excellent choices for cleaning endoscopic instruments. The enzymes used in these detergents are specific to protein, sugar, or fat.

Sterilization

Steam is the most common and least expensive method of sterilization. However, many lensed endoscopic instruments cannot be steam sterilized. Even instruments and telescopes marketed as "autoclavable" will last longer if processed by alternative methods.

Heat-sensitive objects can be treated with EtO, hydrogen peroxide gas plasma; or if other methods are unsuitable, by liquid chemical sterilants.

ETO Sterilization

Ethylene oxide gas has been the standard for sterilizing heat-sensitive items, including endoscopes. Sterilization cycles are typically one and one-half to two hours at 55°C. Items must then be aerated mechanically for eight to 12 hours. Ethylene oxide (EO) is being gradually replaced in some hospitals with other sterilization methods, such as steam, vapor-phase methods, and peracetic acid because of cost and safety concerns. The Steris System (Steris, Mentor, Ohio) uses peracetic acid in a proprietary liquid processor to sterilize items in less than 30 minutes at 50-55°C. This method is a just-in-time process and sterility cannot be maintained for long term storage. Plasma and/or vapor phase are another sterilization modality for endoscopic instruments. Sterrad (Advanced Sterilization Processes of Irvine, Calif.) is FDA-approved for use in the US.

Disinfection

If sterilization is not possible, high-level disinfection is recommended for laparoscopes and hand instruments that come in contact with peritoneum and the live tissue. High-level disinfectants are sporicidal, bactericidal, virucidal, and fungicidal agents that remove most bio burden, with the

exception of some spores. Germicides categorized as chemical sterilants:

- Glutaraldehyde (>2.4%)-based formulations
- Glutaraldehyde (0.95%) with phenol/phenate (1.64%)
- Stabilized hydrogen peroxide (7.5%)
- Hydrogen peroxide (7.35%) with peracetic acid (0.23%)
- Peracetic acid (0.2%)
- Peracetic acid (0.08%) with hydrogen peroxide (1.0%)

Commercial preparations of glutaraldehyde are available in both alkaline and acidic formulations. Although the slightly acidic preparations appear to be safe for endoscopic instrumentation, alkaline preparations are more common. The solutions are available in 2.4% or 3.5% concentration. The 2.4% concentrations without surfactants are the recommended solutions for endoscopic instruments. After the instruments having been disinfected they require rinsing with sterile water.

Rinsing endoscopes and flushing channels with sterile water, filtered water, or tap water will prevent adverse effects associated with disinfectant retained in the endoscope (e.g., disinfectant induced peritonitis). Glutaraldehyde manufacturers now recommending three separate, sterile rinses of at least one minute each. The rinse water is not to be reused.

Issues contributing to improper cleaning In any facility, the challenges include

- Keeping instruments free of gross soil during the surgical procedure
- Minimizing the length of time between instruments leaving the surgical field and the beginning of the cleaning process | Having the right cleaning equipment and solutions in the right place

A Brief Summary Of The Proper Steps Would Include These Points:

- Begin the cleaning process as soon as the procedure is done. Proteins in blood and other tissue can dry and cake on the internal as well as external surfaces of a device; when this happens, thorough cleaning is difficult, if not impossible.
- Covering the instruments with a wet cloth is not enough to keep them from drying out. The best approach is to place the instruments in a basin of solution that is waiting

for them when they come off the surgical table

- Wipe down surfaces of instruments with an enzymatic solution. Flush lumens in laparoscopic instruments and accessories to remove gross debris.
- Separate general surgical instruments from specialized or more delicate instruments.
- Transport instruments to the specified cleaning area. Clean&sterilize according to manufacturers' written instructions.

Operation Theatre – Discipline

- Only people absolutely needed for an assigned work should be present.
- People present in theatre should make minimal movements and curtail unnecessary movements in and out of theatres, which will greatly reduce bacterial count
- Air borne contamination is usually affected by type of surgery, quality of air which in

fact depends on rate of air exchange.

- Prompt disposal of Theatre waste out of the theatre is of top priority. Any spillage of Body fluids including Blood on the floors is highly hazardous and prompts the rapid multiplication of

Nosocomial pathogens in particular pseudomonas spp Sterilisation and disinfection of operation theatres and critical care areas

General instructions

- Keep the floor dry when in use.
- Use only vacuum cleaners (booming to be forbidden as it will disperse the infected material all around and on the equipment
- Chemical disinfection of an operation room floor is probably unnecessary. The bacteria carrying particles already on the floor are unlikely to reach an open wound in sufficient numbers to cause an infection(Ayliffe et al 1967. Hombroeus et al 1978)

Cleaning alone followed by drying will considerably reduce bacterial population

- Wall and Ceilings- Wall and ceiling are rarely contaminated. The numbers of bacteria do not appear to increase even if walls are not cleaned. Frequent cleaning is not necessary and has little influence on bacterial counts. Routine disinfection is therefore unnecessary, but only cleaned when dirty.

Laparoscopes

Although high-level disinfection appears to be the minimum standard for processing laparoscopes between patients, this practice continues to be debated. Proponents of high-level disinfection refer to membership surveys or institutional experiences involving more than 117,000 and 10,000 laparoscopic procedures, respectively, that cite a low risk for infection when high level disinfection is used for gynecological laparoscopic instruments.

Disinfection of HBV-, HCV-, HIV- or TB Contaminated Devices

The CDC recommendation for high-level disinfection of HBV-, HCV-, HIV or TB- contaminated devices is appropriate because experiments have demonstrated the effectiveness of high-level disinfectants to inactivate these and other pathogens that might contaminate semi critical devices. Endoscopes and other semi critical devices should be managed the same way regardless of whether the patient is known to be infected with HBV,

HCV, HIV or M. tuberculosis.

An evaluation of a manual disinfection procedure to eliminate H C V from experimentally contaminated endoscopes provided some evidence that cleaning and 2% glutaraldehyde for 20 minutes should prevent transmission. The inhibitory activity of a phenolic and a chlorine compound on HCV showed that the phenolic inhibited the binding and replication of HCV, but the chlorine was ineffective, probably because of its low concentration and its neutralization in the presence of organic matter.

Conclusion

The knowledge on Maintenance, Sterilization and control of Infections in Operation theatres is a rapidly evolving science. Reusable endoscopic instruments can be reprocessed safely and effectively, providing they are cleaned and sterilized or disinfected according to the manufacturers's

recommendations. All cleaning, disinfecting and sterilizing processes must be standardized and monitored to ensure process quality and specific policies and procedures established to ensure proper handling and standardized practices

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Respectful Maternity Care



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Respectful maternity care (RMC) refers to care organized for and provided to all women seeking maternity services in a manner that maintains their dignity, privacy and confidentiality, ensures freedom from harm and mistreatment, and enables informed choice and continuous support during labour and childbirth. Provision of respectful maternity care is in accordance with a human rights-based approach to reducing maternal morbidity and mortality(WHO). RMC could improve women's experience of labour and childbirth and address health

We have been stressing on safe motherhood and measures to reduce MMR and IMR. Along with good antenatal care, quality care intrapartum can bring down maternal and perinatal morbidity and mortality. Women have been encouraged to give birth in health care facilities to ensure access to skilled health

care and timely referral should the need for additional care arise. Disrespectful and undignified care is prevalent in many health care settings globally, particularly for underprivileged populations, and this not only violates their human rights but is also a significant barrier to accessing intrapartum care services. WHO has formulated comprehensive and consolidated guidelines on intrapartum care for healthy pregnant women and their babies, when delivered as a package of care, will ensure good quality and evidence-based care in all health care settings.

To date, no universal charter or instrument specifically delineates how human rights are implicated in the childbearing process. Seven rights have been included, drawn from the categories of disrespect and abuse identified by Bowser and Hill (2010) in their landscape analysis

Category	Corresponding right
1. Physical abuse	Freedom from harm and ill treatment
2. Non-consented care	Right to information, informed consent and refusal, and respect for Choices and preferences, including companionship during maternity care
3. Non-confidential care	Confidentiality, privacy
4. Non-dignified care (verbal abuse)	Dignity, respect
5. Discrimination based on specific attributes	Equality, freedom from discrimination, equitable care
6. Abandonment or denial of care	Right to timely healthcare and to the highest attainable level of health
7. Detention in facilities	Liberty, autonomy, self-determination, and freedom from coercion

So in seeking and receiving maternity care before, during, and after childbirth,

1. Every woman has the right to be free from harm and ill treatment.
2. Every woman has the right to information, informed consent and refusal, and respect for her choices and preferences, including companionship during maternity care.
3. Every woman has the right to privacy and confidentiality
4. Every woman has the right to be treated with dignity and respect
5. Every woman has the right to equality, freedom from discrimination, and equitable care
6. Every woman has the right to healthcare and to the highest attainable level of health
7. Every woman has the right to liberty, autonomy, self-determination, and freedom from coercion

So the Key components of RMC are being free from harm and mistreatment; having privacy and

confidentiality; dignified care; receiving information and being supported in the process of informed consent; continuous access to family and community support; high-quality physical environment and resources; equitable maternity care; effective communication; having choices and the opportunity to make decisions; availability of competent and motivated human resources; and receiving efficient, effective and continuous care.

These aspects of intrapartum care have already been incorporated in Labour Room Quality Improvement (LAQSHYA) by Govt. Of India Initiative in many delivery points. Some of the components need additional resources. Eg. A separate cubicle or room for a patient, adequate health care providers and monitoring tools. Good-quality supervision, communication and transport links between primary and higher-level facilities need to be established to ensure that referral pathways are efficient. Community-level sensitization activities should be undertaken to disseminate information about respectful maternity care (RMC) as a fundamental human right of pregnant women and babies in health care facilities.

As obstetricians, we need to build a rapport with the patient and the bystanders in the antenatal period as they visit us several times. Antenatal classes should be part of the care through which they can be made aware of the warning danger signs and plan and prepare for delivery. When they arrive in labour, greet with a smile. Keep them in labour ward only when they enter into active labour. Allow a birth companion preferably a female, to be with the patient in active labour. Provide adequate privacy. Provide adequate pain relief in labour depending on the facility available. Keep communicating with the bystanders regarding progress of labour. Keep a partogram. Adequate nourishment need to be provided for all women in labour either orally or by I V route. Decisions on operative delivery should be discussed and a combined decision and informed consent taken. Proper communication and documentation can always save the obstetrician from litigation. Provide the same standard of maternity care for all, regardless of age, ethnicity, race, sexuality, religion, socioeconomic status, HIV status, language or other characteristics. The health care providers should be periodically trained in labour room procedures and communication skills. A feedback form should be filled in by the patients as they leave the labour ward stating their experience. This can be used for further improvement of the quality of care .

Most health care providers would like to provide respectful, dignified and woman-centred care but may feel unable to do so due to resource constraints. Addressing some aspects of RMC, such as improving the physical environment and ensuring adequate numbers of trained staff, is likely to be resource-intensive, and therefore feasibility and sustainability of these aspects may be limited in poor resourced settings. However a relationship characterized by caring, empathy, support, trust, confidence, and empowerment, as well as gentle, respectful, and effective communication to enable informed decision making is feasible even in resource poor settings. Women's memories of their childbearing experiences stay with them for a lifetime and are often shared with other women, good or bad.

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Universal rights of child bearing woman

WHO

WHO recommendation on respectful maternity care during labour and childbirth

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