Translating good obstetric care into practice

Priya Soma-Pillay
2016
“Every minute, somewhere in the world a woman dies in pregnancy or child birth”
Introduction

• Major goal of obstetric care is to ensure the birth of a healthy baby with minimal risks to mother

• Important to determine which interventions are likely to improve pregnancy outcome

• Identification of problems associated with mother, fetus and organisation of service

• Maternal and perinatal mortality audits
SAVING MOTHERS
1999-2001

Saving Mothers 2011-2013:
Sixth report on the Confidential
Enquiries into Maternal Deaths
in South Africa

Short Report

Compiled by the National Committee for Confidential Enquiry into
Maternal Deaths

UNIVERSITY OF PRETORIA

FACULTY OF HEALTH SCIENCES
## Distribution of the underlying cause of death and age category of maternal death

<table>
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<th>Underlying cause</th>
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<th>25 - 29</th>
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<td>&gt;15%</td>
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<tr>
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Saving Babies

2012 – 2013

Ninth report on perinatal care in South Africa

Compiled by

Robert Pattinson and Natasha Rhoda for the PPI/P group
Figure 13. Distribution of timing and primary obstetric causes of perinatal deaths (500g+)

- SB%
- ENND%
- PND%
- SB%
- ENND%
- PND%
- APH
- FA
- HT
- Inf.
- IPA
- U-SB
- IUGR
- MD
- SPTB
How can we optimise pregnancy outcome?
Pregnancy risk assessment should take place pre-conceptually.
Diabetes

- Hyperglycemia is the most important cause of adverse fetal risk in pregnancy

- Normalising blood glucose levels before and in early pregnancy can reduce the risk of miscarriage and congenital malformation to that of non-diabetic women

- Poor control increases risk for IUFD, pre-eclampsia, fetal macrosomia, long term childhood consequences
Diabetes - risk of congenital malformations

<table>
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<th>HBA1C (%)</th>
<th>Risk</th>
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<tr>
<td>&lt;7</td>
<td>No increased risk</td>
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<tr>
<td>7-10</td>
<td>3-7%</td>
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<tr>
<td>10-11</td>
<td>8-10%</td>
</tr>
<tr>
<td>&gt;11</td>
<td>10-20%</td>
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</table>

NICE, 2015
Epilepsy

- Known epileptics should be counselled about increased risk of seizure frequency and potential effect of seizures and anticonvulsant medication on pregnancy outcome

- Anticonvulsant mono-therapy with lowest effective dose

- Folic acid supplementation 1 month prior to conception
Obesity

CMACE/RCOG Joint Guideline

Management of Women with Obesity in Pregnancy

March 2010
4. Pre-pregnancy care

4.1. What care should be provided in the primary care setting to women with obesity of childbearing age?

Primary care services should ensure that all women of childbearing age have the opportunity to optimise their weight before pregnancy. Advice on weight and lifestyle should be given during family planning consultations, and weight, body mass index and waist circumference should be regularly monitored.

Women of childbearing age with a BMI ≥30 should receive information and advice about the risks of obesity during pregnancy and childbirth, and be supported to lose weight before conception.
Alcohol, smoking, drugs

- Optimum time for screening
- Smoking associated with miscarriage, prematurity and LBW
- Alcohol associated with a spectrum of birth defects ranging from subtle growth restriction to fetal alcohol syndrome
- Good evidence for the effectiveness of behavioural intervention in reducing smoking and alcohol consumption
Ante-natal

- First visit should ideally take place before 10w

- Complete history and examination will reveal a patient's risk profile and allow for preventative measures to be instituted.

- Women with prior history of pre-eclampsia have 7% risk. Risk further increased in HT, renal disease or antiphospholipid syndrome.

- Low dose aspirin before 16 weeks will reduce risk by 15%; calcium supplementation.
Pre-eclampsia and eclampsia

- Emergencies associated with hypertension in pregnancy account for 12% of MD worldwide
- Result of eclampsia and unexplained coma
- Predicting which patients are at risk of eclampsia is difficult: adequate BP control and delivery if BP is uncontrolled with reduce risk of ICH
- Magnesium sulphate will reduce risk of eclamptic fits by more than half
NATIONAL CONSOLIDATED GUIDELINES

FOR THE PREVENTION OF MOTHER-TO-CHILD TRANSMISSION OF HIV (PMTCT) AND THE MANAGEMENT OF HIV IN CHILDREN, ADOLESCENTS AND ADULTS

NATIONAL DEPARTMENT OF HEALTH
SOUTH AFRICA, APRIL 2015
Figure 4: Algorithm for initiation of ART for HIV-positive women (ART naïve)

For women who are newly diagnosed HIV-positive or are known to be HIV-positive but not yet on ART and are identified at any time during pregnancy, whilst breastfeeding or within 1 year post-partum.

**HIV-positive not on ART (known and newly diagnosed)**
- History and clinical assessment including for TB screening and WHO staging
- Blood specimens sent for creatinine and CD4 cell count

**If no active psychiatric illness or history of renal disease**
- Start FDC on the same day
- Return in 1 week to review results

**If history of renal disease or active psychiatric illness:**
- the woman has a high risk pregnancy and needs urgent referral
- If HB ≥7g/dl, start AZT 300mg bd

**1 week later:**
- Review results of CD4 cell count, serum creatinine

**If serum creatinine ≤85μmol/L:**
- Continue FDC lifelong

**If serum creatinine >85μmol/L:**
- the woman has a high risk pregnancy and needs urgent referral
- If Hb ≥7g/dl, start AZT 300mg bd and stop the FDC
- (Will require individual agents for ART and investigation for renal compromise)

**Check CD4 count**

**If CD4 <100:**
- Send cryptococcal latex antigen test
Figure 5: Algorithm for management of pregnant woman already on ART for >3 months

**Woman on ART with confirmed pregnancy**

- Perform viral load at the same visit (irrespective of when last done)
- Emphasise importance of adherence

**Review viral load result within 2 weeks**

**Viral load <1000 copies/ml**

- Continue current ART regimen
  - (If appropriate, switch from 3 individual ARVs to FDC to allow integrated follow up at local ANC clinic)

- **Viral load undetectable or ≥1 log drop in viral load**

- **Provide comprehensive adherence counselling**

- **Repeat viral load one month after initial test**

- **Review repeat viral load result**

- **Viral load unchanged OR <1 log drop OR increased**

- **Switch to second line regimen as per adult ART guidelines**

- **Infant requires prophylaxis with AZT plus NVP and birth PCR testing**
Reducing the Risk of Venous Thromboembolism during Pregnancy and the Puerperium

Green-top Guideline No. 37a
April 2015
Appendix I: Obstetric thromboprophylaxis risk assessment and management

Antenatal assessment and management (to be assessed at booking and repeated if admitted)

- Any previous VTE except a single event related to major surgery
- Hospital admission
- Single previous VTE related to major surgery
- High-risk thrombophilia (e.g., cancer, heart failure, active SLE, IBD, or inflammatory polyarthritis, nephrotic syndrome, type 1 DM with nephropathy, sickle cell disease, current IVDU)
- Any surgical procedure (e.g., appendectomy)
- OHSS (first trimester only)
- Obesity (BMI > 30 kg/m²)
- Age > 35
- Parity ≥ 3
- Smoker
- Gross varicose veins
- Current pre-eclampsia
- Immobility, e.g., paraplegia, PGP
- Family history of unprovoked or estrogen-provoked VTE in first-degree relative
- Low-risk thrombophilia
- Multiple pregnancy
- IVF/AIT
- Transient risk factors: Dehydration/hyperemesis, current systemic infection, long-distance travel

**HIGH RISK**
Requires antenatal prophylaxis with LMWH
Refer to trust-nominated thrombosis in pregnancy expert/team

**INTERMEDIATE RISK**
Consider antenatal prophylaxis with LMWH

**LOWER RISK**
Mobilisation and avoidance of dehydration

Four or more risk factors: Prophylaxis from first trimester
Three risk factors: Prophylaxis from 28 weeks

Postnatal assessment and management (to be assessed on delivery suite)

- Any previous VTE
- Anyone requiring antenatal LMWH
- Complicated antenatal history
- Low-risk thrombophilia
- Low-risk thrombophilia + FHR

**HIGH RISK**
At least 6 weeks’ postnatal prophylactic LMWH

**INTERMEDIATE RISK**
At least 10 days’ postnatal prophylactic LMWH

- Caesarean section in labour
  - BMI > 40 kg/m²
  - Readmission or prolonged admission (>3 days) in the puerperium
  - Any surgical procedure in the puerperium except immediate repair of the perineum
  - Medical comorbidities (e.g., cancer, heart failure, active SLE, IBD, or inflammatory polyarthritis, nephrotic syndrome, type 1 DM with nephropathy, sickle cell disease, current IVDU)

Age > 35 years
- Obesity (BMI > 30 kg/m²)
- Parity ≥ 3
- Smoker
- Elective caesarean section
- Family history of VTE
- Low-risk thrombophilia
- Gross varicose veins
- Current systemic infection
- Immobility, e.g., paraplegia, PGP, long-distance travel
- Current pre-eclampsia
- Multiples pregnancy
- Moderate delivery in this pregnancy (<37 weeks)
- Stillbirth in this pregnancy
- Mid-cavity rotational or operative delivery
- Prolonged labour (>24 hours)
- PPH > 1 litre or blood transfusion

In the UK:
- <50 kg: 20 mg enoxaparin/250 units dalteparin/3500 units tinzaparin daily
- 50–90 kg: 40 mg enoxaparin/5000 units dalteparin/4500 units tinzaparin daily
- 91–150 kg: 60 mg enoxaparin/7500 units dalteparin/6000 units tinzaparin daily
- ≥151 kg: 80 mg enoxaparin/10000 units dalteparin/9000 units tinzaparin daily
- Weight > 170 kg: 0.6 mg/kg/day enoxaparin/75 mg/kg/day dalteparin/75 mg/kg/day tinzaparin

APL = antiphospholipid antibodies (lupus anticoagulant, anticardiolipin antibodies), β, glycoprotein 1 antibodies
ART = assisted reproductive technology, BMI = body mass index, DM = diabetes mellitus, FHR = fetal heart rate, GDM = gestational diabetes mellitus, IBD = inflammatory bowel disease, IVF = in vitro fertilisation, LMWH = low-molecular-weight heparin, SD = standard deviation, TTP = thrombotic thrombocytopenic purpura
Preventing preterm birth

• PTB is a leading cause perinatal morbidity and mortality and its prevention is an important healthcare priority

• Cervical cerclage and vaginal micronised progesterone reduces risk:
  - current singleton pregnancy
  - previous preterm birth
  - CL < 25mm in current pregnancy
Vaginal progesterone in women with an asymptomatic sonographic short cervix in the midtrimester decreases preterm delivery and neonatal morbidity: a systematic review and metaanalysis of individual patient data

Roberto Romero, MD; Kypros Nicolaides, MD; Agustin Conde-Agudelo, MD, MPH; Ann Tabor, MD; John M. O’Brien, MD; Elcin Cetingoz, MD; Eduardo Da Fonseca, MD; George W. Creasy, MD; Katharina Klein, MD; Line Rode, MD; Priya Soma-Pillay, MD; Shalini Fusey, MD; Cetin Cam, MD; Zarko Alfrevic, MD; Sonia S. Hassan, MD

OBJECTIVE: To determine whether the use of vaginal progesterone in asymptomatic women with a sonographic short cervix (≤25 mm) in the midtrimester reduces the risk of preterm birth and improves neonatal morbidity and mortality.

STUDY DESIGN: Individual patient data metaanalysis of randomized controlled trials.

RESULTS: Five trials of high quality were included with a total of 775 women and 827 infants. Treatment with vaginal progesterone was associated with a significant reduction in the rate of preterm birth <33 weeks (relative risk [RR], 0.58; 95% confidence interval [CI], 0.42–0.80), <35 weeks (RR, 0.69; 95% CI, 0.55–0.88), and <28 weeks (RR, 0.50; 95% CI, 0.30–0.81); respiratory distress syndrome (RR, 0.48; 95% CI, 0.30–0.76); composite neonatal morbidity and mortality (RR, 0.57; 95% CI, 0.40–0.81); birthweight <1500 g (RR, 0.55; 95% CI, 0.38–0.80); admission to neonatal intensive care unit (RR, 0.75; 95% CI, 0.59–0.94); and requirement for mechanical ventilation (RR, 0.66; 95% CI, 0.44–0.98). There were no significant differences between the vaginal progesterone and placebo groups in the rate of adverse maternal events or congenital anomalies.

CONCLUSION: Vaginal progesterone administration to asymptomatic women with a sonographic short cervix reduces the risk of preterm birth and neonatal morbidity and mortality.

Key words: admission to neonatal intensive care unit, birthweight <1500 g, mechanical ventilation, prematurity, preterm birth, progestin, respiratory distress syndrome, transvaginal ultrasound, uterine cervix, 17α-hydroxyprogesterone caproate
Cerclage vs no cerclage

- Recurrent preterm birth < 35 weeks, RR 0.70
- Perinatal mortality, RR 0.65
- Composite neonatal morbidity, RR 0.60

Berghella, 2011
Progesterone

- 45% reduction in PTB < 33 weeks

- Respiratory distress syndrome (RR 0.48, 95% CI 0.30-0.76)

- Composite neonatal morbidity and mortality (RR 0.57, 95% CI 0.40-0.81)

- Birth weight < 1500g (RR 0.55, 95% CI 0.38-0.80)

- Neonatal intensive care unit admission (RR 0.75, 95% CI 0.59-0.94)

- Need for mechanical ventilation (RR 0.66, 95% CI 0.44-0.98)

Romero, 2012
Obstetric emergencies

- Three important causes of maternal mortality globally are embolism, haemorrhage and pregnancy related hypertension.

- Quick identification with a rapid coordinated response are important for ensuring favourable outcomes.
A Monograph of the Management of Postpartum Haemorrhage
Fetus

- Fetal aneuploidies are a major cause of perinatal mortality and childhood morbidity
- 1st trimester screening identifies patients at risk thus enabling patients to receive counselling and appropriate diagnostic testing
- Nuchal translucency, B-HCG, PAPP-A, NB and ductus venosus will identify 95% fetuses with T21
- Anatomy ultrasound recommended 20-23w
Fetal growth restriction

IUGR is associated with inc PNMR

Fetal monitoring is indicated in high risk pregnancies e.g. pre-eclampsia

Doppler measurement of the fetal umbilical artery, ductus venosus waveform and middle cerebral artery dopplers determine placental function and fetal well being
Organisation of service

Reduce errors in the healthcare system:

- Leadership
- Respect for human limitations
- Effective team function
- Anticipate the unexpected
Conclusion

• Good obstetric care requires a team effort between clinicians, researchers and health care managers

• Important to understand the process of obstetric care, identify weaknesses within the system

• Implement interventions for improving care