Who and JCHCO reducing maternal mortality after PPH

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OBSTETRIC HEMORRHAGE

• Procrastination in dealing with pelvic hemorrhage only accentuates the problem. Hoping that hemorrhage will spontaneously cease is useless, and steps should be taken immediately.

An obstetric operating room in Philadelphia 1894

Those considered extremely poor accounted for almost half of the developing World’s population in 1990, ten years before the MDGs were established. In 2005, 5 years into the MDGS. They accounted for just over a quarter.

Este artículo puede ser consultado en versión completa en http://www.medigraphic.com/rma
UNITED NATIONS MILLENNIUM DEVELOPMENT GOALS REPORT 2009
HTTP://WWW.UN.ORG/MILLENIUMGOALS/PDF/MDG_REPORT_2009_ENG.PDF
REGIONAL GROUPINGS

This report presents data on progress towards the Millennium Development Goals for the world as a whole and for various country groupings. These are classified as ‘developing’ regions, the transition economies of the Commonwealth of Independent States (CIS) in Asia and Europe, and the ‘developed’ regions. The developing regions are further broken down into the subregions shown on the map above. These regional groupings are based on United Nations geographical divisions, with some modifications necessary to create, to the extent possible, groups of countries for which a meaningful analysis can be carried out. A complete list of countries included in each region and subregion is available at mdgs.un.org.

1 Since there is no established convention for the designation of ‘developed’ and ‘developing’ countries or areas in the United Nations system, this distinction is made for the purposes of statistical analysis only.
NUMBER OF PEOPLE LIVING WITH HIV, NUMBER OF PEOPLE NEWLY INFECTED WITH HIV AND NUMBER OF AIDS DEATHS WORLDWIDE, 1990-2008 (MILLIONS)

UNDER-FIVE MORTALITY RATE PER 1,000 LIVE BIRTHS, 1990 AND 2008
GOAL 5: IMPROVE MATERNAL HEALTH

DATA: Maternal deaths per 100,000 live births
KEY TARGET: Reduce by three quarters, between 1990 and 2015, the maternal mortality ratio

% of target still remaining in 2008

MATERNAL MORTALITY

- 358,000 maternal deaths worldwide 2008
- 140,000 maternal deaths from PPH
- 34% decline from 1990
- 99% (355,000) in developing countries
- 87% Sub-Saharan Africa and South Asia
- Adult lifetime risk of maternal death is highest in sub-Saharan Africa at 1 in 31
BLOOD LOSS AT PARTURITION

AVERAGE BLOOD LOSS AND COMPLEXITY OF DELIVERY

- Vaginal delivery-500 mL
- Cesarean section-1,000 mL
- Repeat cesarean section & TAH-1,500 mL
- Emergency hysterectomy-3,500 mL

Pritchard AJOB 1961
Clark Obstet Gynecol 1984

PHILOSOPHY

“What matters in health care is identifying and using interventions that have been shown by strong research evidence to achieve the best outcomes within available resources for everyone”.
Fletcher R, Lancet 1999

EFFECTIVE INTERVENTIONS TO REDUCE MATERNAL MORTALITY/SEVERE MORBIDITY

Effective intervention | Condition prevented/treated
--- | ---
Parenteral antibiotics | → Sepsis
Uterotonics | → PPH
Anticonvulsants | → Convulsions
Removal of placenta and retained products | → PPH, abortion complications
Assisted vaginal delivery and cesarean section | → Obstructed labor

UTEROTONIC AGENTS FOR POSTPARTUM HEMORRHAGE

<table>
<thead>
<tr>
<th>Drug</th>
<th>Dose</th>
<th>Route</th>
<th>Frequency</th>
<th>Comments and contradictions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxytocin (Syntocinon)</td>
<td>10-40 Units in 1000 mL N saline or LR</td>
<td>IV (IM, IMM)</td>
<td>Continuous infusion</td>
<td>No C/I</td>
</tr>
<tr>
<td>Methylergonovine (Methergine)</td>
<td>0.2 mg</td>
<td>IM (IMM)</td>
<td>Every 2-4 hours</td>
<td>Hypertension/toxemia</td>
</tr>
<tr>
<td>15 Methyl PGF2 (Hemabate)</td>
<td>0.25 mg</td>
<td>IM (IMM)</td>
<td>Every 15-90 min not to exceed 8 doses</td>
<td>Active cardiac, pulmonary, renal or hepatic disease</td>
</tr>
<tr>
<td>Dinoprostone</td>
<td>20 mg</td>
<td>PR</td>
<td>Every 2 hours</td>
<td>Avoid in hypotensive patient because of vasodilation. If available, 15 M PGF2 is preferable</td>
</tr>
</tbody>
</table>

Blood transfusion → PPH/severe anemia
Iron/folate → Postpartum anemia
Iodine → Cretinism
Antiretrovirals → MTCT of HIV
Malaria prophylaxis → LBW
Support in labor → Clinical procedures, increases breastfeeding
External cephalic version at term → Breech deliveries
ALTERNATIVE AGENTS FOR PREVENTION OF POSTPARTUM HEMORRHAGE

- **Misoprostol**
  - Synthetic analog of PGE1
  - 1996-1st trial outlining its use to prevent 3rd stage
  - 24 randomized controlled trials from 1998-2003
    - Oral and rectal misoprostil not as effective as conventional injectable uterotonics
    - High rate of side effects
  - May be useful in less-developed countries where administration of parenteral uterotonic agents are problematic

MISOPROSTOL AVAILABILITY (2002)

18TH EXPERT COMMITTEE ON THE SELECTION AND USE OF ESSENTIAL MEDICINES

Geneva, 2010

Proposal for the inclusion of misoprostol in the WHO model list of essential medicines

Submitted on behalf of
Gynuity Health Projects, NY, USA

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MATERNAL MORTALITY

- Obstetrical Hemorrhage -

Identify patients at risk
Multidisciplinary «Hemorrhage protocol»
Clinical management of PPH

CAN WE PREDICT WHO WILL BLEED?

1. Identify pat. at risk

- Obstetrical hemorrhage -

- PI previa/accreta
- Anticoagulation Rx
- Coagulopathy
- Overdistended uterus
- Grand multiparity
- Abn labor pattern
- Chorioamnionitis
- Large myomas
- Previous history of PPH
MATERNAL MORTALITY

- Obstetrical hemorrhage -

Patients at risk → Pre-delivery management

1. Prepare for PPH
2. Optimize patient’s hemodynamic status
3. Timing of Delivery
4. Surgical planning
5. Anesthesia /I.V. access/ invasive monitoring
6. Modify obstetrical management
7. Increased postpartum/postop surveillance

MATERNAL MORTALITY

- Obstetrical hemorrhage -

Personnel

- Obstetrician
- Anesthesia
- Nursing
- Lab and Blood Bank
- Others (I.R.)

Drugs/equipment

- Pitocin
- Methergine
- Hemabate
- Cytotec
- Colloids
- Blood/Bl. products

- Surg. instruments
- Intruterine balloon (Cook, S-B, Foley)

IF ACTIVE BLEEDING OCCURS...

- Expedite control of hemorrhage
- Limit crystalloid infusion
- Maintain anesthesia and paralysis
- Keep BP low (80-100 systolic)
- Resuscitate with blood: 1:1:1 RBC/plasma
- Follow labs closely—especially calcium and pH

Dutton RP. Pharmacotherapy. 2007;27(9 pt 2):85S–92S.

FLUID AND BLOOD COMPONENT REPLACEMENT

- Whole blood vs components, debate continues
- Maintain urine output > 30 cc/hr
- Maintain hematocrit > 30% (with acute blood loss)
- Choice of components:
  - Hemoglobin – packed red blood cells
  - Fibrinogen-cryoprecipitate
  - Other clotting factors-fresh frozen plasma
  - Platelets-platelet packs
  - Volume-lactated Ringer’s solution

MATERNAL MORTALITY

- Obstetrical hemorrhage -

Identify patients at risk

Multidisciplinary «Hemorrhage protocol»

Clinical management of PPH

1. How/Who triggers the «H.P.»
2. Identify «The response team»
3. Transfusion protocol
4. Define the logistics involved
5. Conduct drills
6. Post-op care

MATERNAL MORTALITY

- Obstetrical hemorrhage -

Identify patients at risk

Multidisciplinary «Hemorrhage protocol»

Clinical management of PPH

2. The «Response team»

- Nursing
- Anesthesia
- Ob surgery (MFM, Gyn Onc, Ob-Gyn,)
- Intervention radiology
- Urology
- Hematology
MATERNAL MORTALITY

- Obstetrical hemorrhage -

3. Transfusion protocol
   - Immediate release of O neg blood if required
   - How fast can Crossmatched blood be made available
   - Physical transport of blood \(\rightarrow\) O.R. and samples O.R. \(\rightarrow\) Lab/blood Bank

5. Drills
   - Conduct drills 3-4 x/year
   - Evaluate the performance
   - Review the results with the entire team

SURGICAL THERAPY

- Uterine packing
- Intrauterine balloon tamponade
- Uterine artery ligation
- Internal iliac (hypogastric) artery ligation
- Hysterectomy
- Suture techniques

BAKRI POSTPARTUM BALLOON

RUSCH BALLOON

INTRAUTERINE BALLOON SENGSTaken-BLAkEMORE
CONDOM TAMponade

Figure 1. Transabdominal ultrasound view of inflated condom catheter (without inflated balloon) within the uterine cavity. A second Foley catheter (with inflated balloon) is placed within the urinary bladder

MAternal MORTALITY

- Obstetrical hemorrhage -

Uterine artery ligation

Over a 30 yr period 256 Ut artery ligation were performed for PPH.
• Successful 246 cases
• Failed 10 cases
O’Leary, J J Reprod Med 1995
MATERNAL MORTALITY

- Obstetrical hemorrhage -

Hypogastric artery ligation

- Decreases blood flow by → 48%
- Controls severe PPH in → 50% of cases

Clark et al Ob-Gyn 1985

B-LYNCH COMPRESSION SUTURE

ACHEVING OPTIMAL OPERATIVE HEMOSTASIS

Thrombosis

Clotting

Physiology and good surgery

Bleeding

Hemorrhage

Topical hemostatic agents

Systemic biologic therapies


CATASTROPHIC OBSTETRICAL HEMORRHAGE

Conclusions

- Incidence low, but significant M/M
- Visual estimation, underestimates blood loss
- Earlier the intervention, less the blood loss
- Organized approach essential to management
- Precise fluid and blood component therapy
ACTIVE MANAGEMENT OF THE THIRD STAGE OF LABOR

- Uterotonic administered following delivery
- Controlled cord traction
- Uterine massage after delivery of the placenta