Nigeria Non-atonic Gynecologic and Obstetric Hemorrhage Treated with the Non-pneumatic Anti-Shock Garment (NASG)

1: BACKGROUND / OBJECTIVES

Obstetric hemorrhage (OH) is the leading cause of maternal mortality in resource limited settings. In rural areas of Nigeria, as many as 1800 women die of obstetric hemorrhage per 100,000 live births.1

New technologies and strategies, such as misoprostol, oxytocin in Uniject, and Active Management of Third Stage Labor are available to prevent and manage uterine atony.2,3 However, not all cases of uterine atony will respond to uterotonic prevention and/or treatment and many etiologies of OH have a non-atonic etiology.

The Non-Pneumatic Anti-Shock Garment (NASG) is a low technology first-aid device used for the management of hypovolemic shock secondary to obstetric hemorrhage.4,5

Our objective was to determine if women suffering hypovolemic shock from non-atonic OH treated with the NASG plus standard protocol have better outcomes than women treated only with standard protocol.

2: METHODS

A pre-intervention / intervention study of NASG for OH was conducted in 4 tertiary hospitals in Nigeria in Oyo, Lagos, Kano and Katanga states.

This sub-study of non-atonic cases represented 42% of all cases in the larger study.

N=191 (70 pre- intervention, 121 post-intervention/NASG)

Non-atonic etiologies included ectopic pregnancy, ruptured uterus, lacerations, placenta previa, abruption.

Entry criteria included obstetric hemorrhage (blood loss ≥ 750 ml) and at least one sign of shock (pulse >100; SBP<100)

Comparisons on demographics, treatment, and outcomes:
- Measured blood loss (in blood collection drape)
- Extreme Adverse Outcomes (EAO) (severe morbidity & mortality)
- T-tests, chi square, and relative risks with 95% confidence intervals

3: ETIOLOGIES

Placenta Accreta 2%
Molar 1%
Abruption of Placenta 33%

Mean Percentage of Women with Primary Diagnosis of Non-Atonic Hemorrhage (N=191)

4: RESULTS

- All women were in severe shock; 57% in the pre-intervention phase and 79% in the NASG phase had a MAP < 60/non-palpable BP (p=0.001).
- There were no differences in age, parity or duration of pregnancy, nor in treatment variables, except women in the NASG were more likely to get >1500 mL IV fluids in the 1st hour after study admission (p=0.001).
- Outcomes were better for the NASG group with fewer severe morbidities (renal failure, ARDS, cardiac failure, cerebral impairment) and reduced mortalities. EAOs reduced by 46.5%. There was also a significant reduction in blood loss for the NASG group.

Mean days in hospital after study admission, days, (SD) (N=157)
Mean measured blood loss, mL, (SD) (N=87)
Extreme Adverse Outcome (mortality or severe morbidity %, (n) (N=191)

5: CONCLUSIONS

Limitations included: small sample size, pre-intervention/ intervention design, challenges to resuscitate patients due to lack of blood, and missing data caused by overburdened facilities and clinicians.

Women in shock secondary to OH from non-atonic etiologies may have improved outcomes by adding the NASG to standard shock / hemorrhage management

Larger studies with a more rigorous design are required to demonstrate this

6: REFERENCES