



RESEARCH ARTICLE

AN EXPERIMENTAL STUDY ON EFFECTIVENESS OF NON-PNEUMATIC ANTI SHOCK GARMENT AMONG SEVERE POSTPARTUM HEMORRHAGE IN 108 AMBULANCES

*Saroja Pandian

3G, Union Bank, Colony 2nd Street, New, Vilangudi, Madurai 625018, India

ARTICLE INFO

Article History:

Received 20th October, 2019
Received in revised form
17th November, 2019
Accepted 25th December, 2019
Published online 31st January, 2020

Keywords:

Postpartum Hemorrhage, NASG,
Hypovolemic Shock,
Maternal Mortality.

ABSTRACT

Introduction: Postpartum hemorrhage is the leading cause of maternal mortality. PPH is commonly defined as a blood loss of 500ml or more within 24 hours after birth. Most deaths resulting from PPH occur during the first 24 hours after birth. World health organization statistics suggest that 25% of maternal deaths are due to PPH. The non- pneumatic anti- shock garment is used to prevent hypovolemic shock. We studied its efficacy for reducing maternal deaths due to postpartum hemorrhage by using them for cases of PPH transported in ambulance.

Objectives of the study

- 1.To assess the total no.of pregnancy cases transported in 108 ambulances.
- 2.To identify the total no.of PPH cases transported in 108 ambulances.
- 3.To evaluate the critical cases of PPH.
- 4.To determine the utilization of NASG in PPH cases.
- 5.To evaluate the effectiveness in the utilization of NASG in PPH cases.

Methodology: Experimental design was adopted. 21 cases of post-partum hemorrhage, transported by GVK EMRI 108 ambulances were selected by convenient sampling.

Results: Finding of the study revealed that, PPH cases transported with NASG (98%) were lives saved. **Conclusion:** Utilization of NASG prevents blood loss, helps mother recover from hypovolemic shock and keeps them alive while they are being transported to a tertiary care center for definitive treatment even if it is long distance/ duration transport.

INTRODUCTION

Obstetric shock as a consequence of Post-partum Hemorrhage is one of main cause of maternal mortality. World Health Organization statistics suggests that 25% of maternal deaths are due to PPH, accounting more than 100,000 maternal deaths in a year. A maternal death occurs due to three delays. They are as follows: recognizing problems, reaching care and receiving care. The second delay is directly related to emergency medical services. Emergency Management & Research Institute (EMRI) has developed 'Sense-Reach-Care' paradigm to comprehensively address emergencies using technology, process and people. Non-pneumatic Anti-Shock Garment (NASG) is a health technology identified in WHO Medical devices and e-Health solutions Compendium of innovative health technologies for low-resource settings (2011). NASG Stabilizes mother's condition, allowing survival even during prolonged duration of transport

Non-Pneumatic Anti-Shock Garment: Which is a low-technology first-aid medical device is made up of Neoprene material. It has 9 articulated segments that are wrapped sequentially around the legs, pelvis and abdomen.

*Corresponding author: Saroja Pandian,

3G, Union Bank, Colony 2nd Street, New, Vilangudi, Madurai 625018, India.

The foam ball over the abdomen is provided for additional compression to the aorta thus affecting blood flow. Blood flow from these areas will be diverted in direction of redirected to the vital organs such as the heart, lungs and brain and thus reduce the mortality due to PPH.

Objectives of the study

Primary objective:

- To assess the total number of PPH cases transported in 108 Ambulances.
- To determine the level of severity of PPH
- To evaluate the efficacy of NASG in PPH cases
- To determine number of lives saved with the use of NASG
- Secondary Objective;
- To make recommendations to include this life saving device for all ambulances

METHODOLOGY

According to the statement and objective to be achieved experimental design was adopted. 28 cases of Severe Postpartum hemorrhage transported by 108 Ambulances at GVK EMRI were selected by convenient sampling.

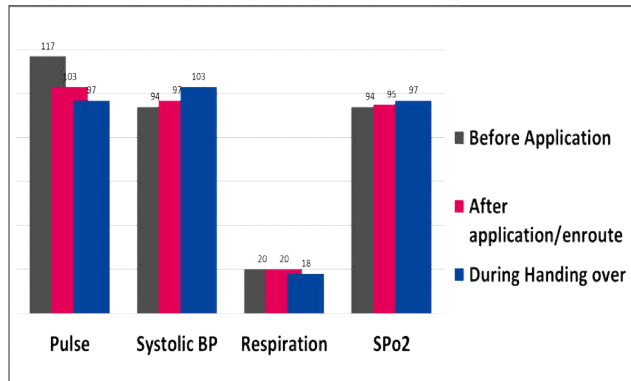
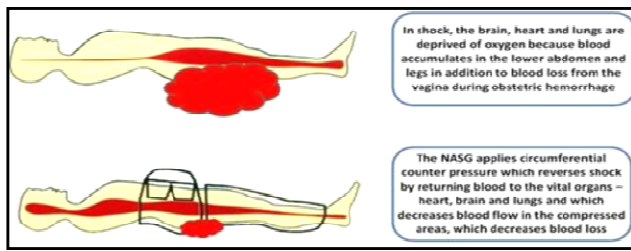


Figure 1. Observation of vital signs in 3 stages

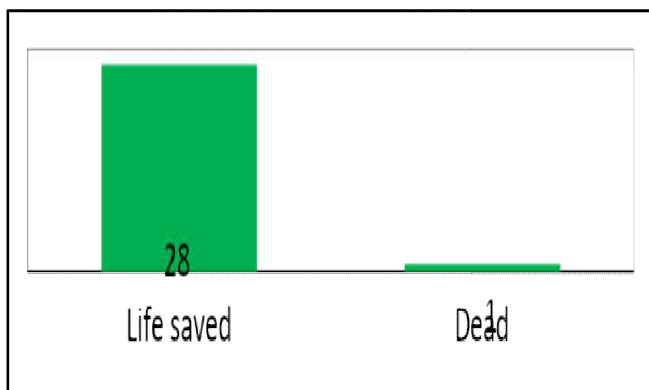


Figure 2. Review of life saved (after 48hrs follow up)

All patients had blood loss of more than 1000 ml and were haemodynamically unstable (BP<90 Systolic and HR>100/min, NASG was applied and every 15 minutes vital signs are monitored. The vital signs which are taken for the study analysis is before application, after application, enroute (while transporting and during admission).

RESULTS

Objective 1: Total number of PPH cases transported by 108 ambulance -9909 (September 2008 to September 2013)

Objective 2: Severity of PPH cases -29 severe PPH cases of blood loss more than 1000ml, systolic BP <90, pulse >100bpm, res20bpm and saturation 94%

Objective 3: Evaluation of the efficacy of NASG for PPH cases. Mean measure of vital parameters after application of NASG: systolic BP 103and pulse rate 97/min, RR 18bpm and saturation 97%

DISCUSSION

Improvement of vital signs: there is drastic improvement of vital signs from unstable to stable, before application to after application. No recorded side effects. Mean transportation time: 55-60 mints. 28 cases of severe PPH saved by use of NASG. NASG promises for the management of Hypovolemic shock due to PPH and hence decrease in Maternal Mortality. Utilization of Non Pneumatic Anti-shock garments decrease blood loss, prevents hypovolemic shock and thus increases the chances of survival

REFERENCES

Pathfinder International , Non-pneumatic anti-shock garment (NASG) : a unique first aid device for obstetric hemorrhage and hypovolemic shock 2012
 WHO (World Health Organization.) WHO Recommendations for the Prevention and Treatment of Postpartum Hemorrhage. Geneva, Switzerland; 2012.
 Advanced Life support in Obstetrics(ALSO)-2009 American Academy of Family Physicians
