



Practices of Nursing Personnel Regarding Neonatal Resuscitation

Kaur Parvinder¹, Kumar Yogesh², Kaur Gurneet³

¹Nursing tutor, ²Associate Professor,
Department of Child Health Nursing, M.M College of Nursing, Maharishi Markandeshwar University, Ambala,
Haryana, India

³Sr. Nurse Educator, Yuva Healthcare Skilling Pvt. Ltd, Gurgaon, Haryana

Corresponding Author: Kaur Parvinder

Received: 19/05/2015

Revised: 11/06/2015

Accepted: 16/06/2015

ABSTRACT

Background: Establishment of spontaneous breathing after birth is most crucial for the survival of a newborn baby. Many babies do not receive proper resuscitative care which leads to high neonatal mortality which is preventable. So, the neonatal resuscitation performed by skilled nursing personnel is necessary in reducing the mortality and morbidity among neonates.

Objective: To evaluate the effectiveness of Neonatal Resuscitation Program in terms of practices of nursing personnel regarding neonatal resuscitation.

Methodology: An observation checklist regarding neonatal resuscitation was developed and used for data collection and nurses were educated as per Neonatal Resuscitation Program-2005 guidelines. A quasi experimental approach was used with Time-series design with multiple institution of treatment. Pre and post-implementation data was collected from 30 purposively selected nursing personnel from Labour room of General Hospital, Ambala Cantt and General Hospital, Naraingarh, Ambala, Haryana and upto 5 subsequent reinforcements were given.

Results: Findings of the study revealed that majority of the nursing personnel (90%) had professional qualification of Diploma in Nursing and majority of nursing personnel (73.33%) have attended an in-service education related to neonatal resuscitation. The mean 5th post-implementation practice score of nursing personnel regarding neonatal resuscitation (39.37+2.73) was higher than pre-implementation practice score of nursing personnel (30.10+2.35) as evident from the calculated 't' of 19.63 (29) which was found to be statistically significant at 0.05 level of significance. The practices of nursing personnel were significantly associated with number of resuscitations performed previously ($\chi^2=30.0$).

Conclusion: The study concludes that neonatal resuscitation program was effective in improving the practices of nursing personnel regarding neonatal resuscitation.

Keywords: Effectiveness, Neonatal Resuscitation Program, Practice, Neonatal Resuscitation, Nursing Personnel

INTRODUCTION

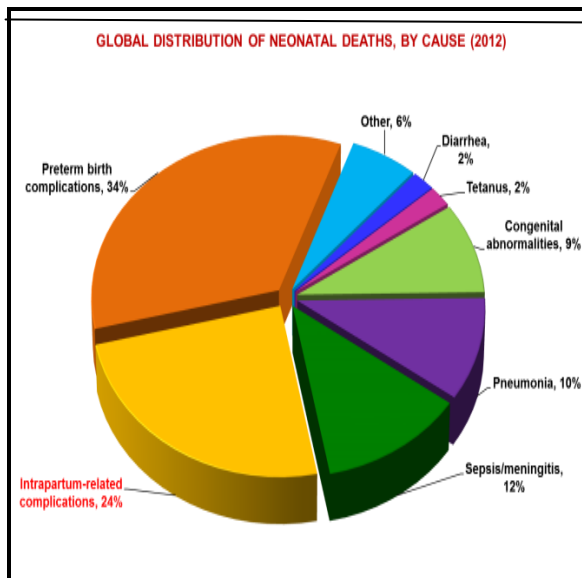
Background of the study:

Birth of a newborn is the most hazardous period of life as it is associated with largest number of deaths in comparison to any other phase of life. Newborns have to make the

transition from a fluid-filled environment, to an air-filled environment in which the baby's own cardiopulmonary system has to independently function within minutes of birth for survival. ^[1]

At least 90% of neonates successfully make this transition without need of help. The remaining 10% of newborns require some assistance to begin breathing at birth and 1% or more may require intensive resuscitative efforts. [2]

India accounts for the greatest burden of newborn deaths in the world. An estimated 8,76,000 newborns die each year in India alone (2011 estimates) – accounting for an estimated 30% of the total global burden of neonatal deaths and a staggering 53% of under-5 deaths in India. [3]



The Million Death Study from India, found perinatal asphyxia and malformations to be the other two significant causes of neonatal mortality. [4]

Birth asphyxia accounts for 10% of total neonatal deaths and is the second major causes of neonatal mortality after prematurity that accounts for 14% of neonatal deaths. [5]

Neonatal resuscitation is the set of interventions provided at the time of birth to support the establishment of breathing and circulation. Of 136 million births annually, an estimated 10 million (approx 5-10%) require simple stimulation at birth to help them breath like rubbing and drying. Basic resuscitation with a bag-and-mask is

required for an estimated 6 million (approx 3-6%) of these babies each year, and is sufficient to resuscitate most neonates with secondary apnoea. The data shows that in majority of newborns with birth asphyxia, simple stimulation and initial steps of neonatal resuscitation proved to be helpful in establishing normal breathing. [6]

In order to prevent the neonatal deaths, the staff nurses must perform resuscitation procedure at a high level of professional competence and thus, the staff nurses must be trained regarding proper skills and technique of routine care and neonatal resuscitation. But many researchers have identified that nurses are unaware of the current resuscitation practices. Hence the researcher has taken up the study to evaluate the effectiveness of Neonatal Resuscitation Program in terms of practices of nursing personnel regarding neonatal resuscitation.

Aims and Objectives

1. To assess and compare the practices of nursing personnel regarding Neonatal resuscitation before and after administration of Neonatal Resuscitation Program.
2. To determine the association of levels of practices of nursing personnel regarding neonatal resuscitation with selected variables.

MATERIALS AND METHODS

A quasi experimental approach was adopted with Time-series design with multiple institution of treatment. Neonatal Resuscitation Program 2005 guidelines were used to give teaching to the nursing personnel.

Data was collected from 30 nursing personnel by using purposive sampling technique with the help of Observation checklist which was developed based on extensive review of literature, expert's guidance and informal observation of present setting by researcher. Level of Practices was classified as Good ($\geq 80\%$),

Fair (65-80%), Average (51-65%), Poor ($\leq 50\%$).

On day one, pre-implementation practices regarding neonatal resuscitation were assessed. On subsequent days, teaching, demonstration, redemonstrations and reinforcements of neonatal resuscitation program was done. Demonstration and Redemonstrations involved Neonatal Resuscitation upto Routine Care and Initial Steps only, was given using a simulator and having hands-on session with nursing personnel (till 5 reinforcements). There was no attrition of the sample subjects in post-implementation assessments. Data was analysed by using both descriptive and inferential statistics.

RESULTS

Socio-demographic Characteristics of Nursing Personnel-

All the nursing personnel (100%) were females and majority of them (40%) were in the age group of 30-40 years. Majority of the nursing personnel (90%) were having Diploma in Nursing. Majority of nursing personnel (73.33%) had previous working experience in labour room of 36 months and above followed by 23.33% had previous working experience in labour room

of 24-36 months. Majority of nursing personnel (73.33%) have attended the in-service education related to neonatal resuscitation. Majority of nursing personnel (70%) had actually performed 1-5 numbers of neonatal resuscitations.

Evaluation of the effectiveness of Neonatal Resuscitation Program in terms of practices of nursing personnel:

Table 1 depicts that the mean 1st, 2nd, 3rd, 4th and 5th post-implementation practice scores of nursing personnel regarding neonatal resuscitation was 30.13, 37.60, 39.77, 39.20 and 39.37 respectively which was higher than the mean pre-implementation practice (30.10). The difference in the pre-implementation and 1st post-implementation practice scores was statistically found to be non-significant which represents that the Neonatal Resuscitation Program was not effective in improving the skills of nursing personnel in first teaching and demonstration, whereas with subsequent reinforcements post-implementation practice scores were statistically found to be significant as per 't' test ($p < 0.05$) which represents that protocol was effective in improving practice skills of nursing personnel regarding neonatal resuscitation.

Table 1: Comparison of Pre-implementation with Post-implementation Practice Scores of Nursing Personnel regarding Neonatal Resuscitation N=30

Areas	Mean	Mean _D	SD _D	SE _{MD}	't'
Pre-implementation	30.10				
1 st Post-implementation	30.13	0.33	2.35	0.519	0.068 ^{NS}
2 nd Post-implementation	37.60	7.5	2.35	1.53	8.96*
3 rd Post-implementation	39.77	9.66	2.35	0.87	17.59*
4 th Post-implementation	39.20	9.10	2.35	0.80	16.62*
5 th Post-implementation	39.37	9.26	2.35	0.68	19.63*

't' (29) = 2.05, *significant ($p \leq 0.05$) ^{NS} non-significant ($P \geq 0.05$)

Item wise cumulative percentage distribution after 5th post-implementation assessment practice scores of nursing personnel in the areas of Routine care of newborn, initial steps of Neonatal Resuscitation:

In the area of Routine care of Newborn, in 5th post-implementation, none

of nursing personnel put identification label, wiped the eyes of newborn gently and administered Injection Vitamin K. Only 6.66% received the newborn onto warm, dry towel. 30% of nursing personnel dried the newborn gently from head to toe with pre-warmed towel, 43.33% weighted the newborn and 56.66% put the newborn onto

mother's abdomen while all the nursing personnel called out the time of birth, looked to see newborn is breathing or crying, had good muscle tone, amniotic fluid clear or not and clamp and cut the umbilical cord at right place.

In the area of Initial steps of Neonatal Resuscitation which is carried out by only 8 nursing personnel during 5 reinforcements, in 5th post-implementation (n=2) none of nursing personnel received the newborn onto warm, clean, dry towel and repositioned the newborn. 50% of nursing personnel decided the newborn needed resuscitation, removed the wet cloth or towel, assessed the newborn for breathing, heart rate and skin color while all

(100%) the nursing personnel called out the time of birth, looked to see amniotic fluid clear or not, newborn breathing or crying, and muscle tone good or not, transferred the newborn to warm, clean and dry radiant warmer, placed a folded piece of cloth under newborn's shoulder, suctioned mouth then nose and did tactile stimulation.

In the After care in the neonatal resuscitation, in 5th post-implementation, none of nursing personnel monitored vital signs of baby and explained the parents about newborn's condition. 30% of nursing personnel initiated breastfeeding while all the nursing personnel maintained warmth, washed hands and document the procedure and complications.

Table 2: Pre-implementation and 5th Post-implementation Practice Score of Nursing personnel regarding Neonatal Resuscitation. N=30

Areas	Mean	Mean _D	SD _D	SE _{MD}	't'
Preparation of articles					
Pre-implementation	14.57				
5 th Post-implementation	20.13	5.56	1.65	0.27	18.43*
Preparation of Delivery Room & Self					
Pre-implementation	5.0				
5 th Post-implementation	7.40	2.40	1.65	0.29	7.95*
Routine Care/ Initial Steps					
Pre-implementation	7.47				
5 th Post-implementation	8.43	0.96	1.09	0.20	4.82*
After care					
Pre-implementation	3.07				
5 th Post-implementation	3.30	0.23	0.77	0.11	1.65 ^{NS}

't' (29) = 2.05, *significant (p ≤ 0.05) ^{NS} non-significant (P ≥ 0.05)

Pre-implementation and 5th Post-implementation Practice Score of nursing personnel regarding Neonatal Resuscitation:

Data presented in Table 2 reveals that the mean 5th post-implementation practice score in all the areas i.e. Preparation of articles, Preparation of delivery room and self-preparation, Routine care of newborn/ Initial steps of neonatal resuscitation and After care in Neonatal Resuscitation areas was 20.13, 7.40, 8.43 and 3.30 respectively

Association of levels of practices with the selected variables of nursing personnel regarding neonatal resuscitation:

was higher as compared to mean pre-implementation practice score i.e. 14.57, 5, 7.47 and 3.07 respectively. The calculated 't' value of 18.43, 7.95 and 4.82 was found to be statistically significant (p < 0.05) while the calculated value of 1.65 (After care) was not found statistically significant (p > 0.05) which represents that the protocol was effective in improving the practices of nursing personnel in all the areas while practices in the after care of the neonatal resuscitation changed only to some extent.

The result further showed that the chi-square value of practices of nursing personnel with selected variables i.e. age,

professional qualification, working experience in Labour room, in-service education attended or not and if yes, how many times was not found statistically significant at 0.05 level of significance while the chi-square value of practices of nursing personnel with selected variable i.e. Number of resuscitations performed previously was found to be 5.99, which was found statistically significant at 0.05 level of significance. Thus, it can be inferred that the effectiveness of neonatal resuscitation program in terms of practices of nursing personnel regarding neonatal resuscitation was associated with the number of resuscitations performed previously as the nursing personnel who performed more than 11 neonatal resuscitations have fair practices regarding neonatal resuscitations.

DISCUSSION

The present study findings indicated that nursing personnel had poor practices regarding neonatal resuscitation. These findings were consistent with the findings of the study conducted by Ogunlesi A Tinuade, Dedeke I Olabisi, Adekanmbi et al. (2006) [7] to assess the knowledge of nurses in Western Nigeria about neonatal resuscitation which concluded that the knowledge of respondents about appropriate actions during neonatal resuscitation was poor. Frequent and intensive courses on neonatal resuscitation are highly desired. The findings were also consistent with the findings of the study conducted by Khudhair Suad Hassoon (2012) [8] for the evaluation of nurses' practice towards resuscitation and find the relationship between the nurses' practices and their demographic characteristics in 4 teaching hospitals in Baghdad city which indicated that the nurses have poor practices about neonatal resuscitation in delivery room.

The results of the present study had shown that the mean post- implementation practice scores of nursing personnel

regarding neonatal resuscitation was higher than the mean pre-implementation practice scores. These findings are consistent with the findings of the study conducted by Carlo A Waldemar, Wright L Linda, McClure M Elizabeth et al. (2005) [9] to evaluate the effectiveness of the American Academy of Paediatrics Neonatal Resuscitation Program (NRP) in improving knowledge, skills and self-efficacy of nurse midwives in low-risk delivery clinics in Zambia which concluded that the pre-training knowledge and skills scores were relatively low and NRP training has the potential to substantially improve knowledge and skills of neonatal resuscitation.

The study indicated implementation of neonatal resuscitation program and its effectiveness in improving the practices of nursing personnel regarding neonatal resuscitation. These findings are consistent with the findings of the study conducted by Laurel Bookmana, Cyril Engmannb et al. (2007-2009) [10] to assess midwives' baseline cognitive knowledge of evidence-based neonatal resuscitation practices, and short- and long-term educational effects of teaching a neonatal resuscitation program in a hospital setting in West Africa which concluded that after receiving NRP training, neonatal resuscitation knowledge and skills increased among midwives in a hospital in West Africa and were sustained over a 9-month period. This finding demonstrates the sustained effectiveness of a modified neonatal resuscitation training program in a resource constrained setting.

CONCLUSION

Neonatal resuscitation has the potential of altering the outcome of intra-partum and post-partum events. In order to ensure intact survival of newborns, it is desirable that the labour room should be provided with necessary equipments, staffs and facilities. The health professionals and the staff nurses working in this area should

have adequate knowledge and good practices to resuscitate a newborn baby.

The study findings concluded that practices of nursing personnel regarding neonatal resuscitation were poor. Neonatal Resuscitation Program was effective in improving the practices of nursing personnel regarding neonatal resuscitation. The study further recommended that there is a great need of introducing periodic and routine Neonatal Resuscitation training programmes that may improve the skills of nursing personnel working in delivery room.

REFERENCES

1. AHA/AAP Neonatal Resuscitation Program Steering Committee. Textbook of Neonatal Resuscitation, 4th Ed. Elk Grove Village, IL: American Academy Of Pediatrics; 2000
2. Barber Cam, Wyckoff MH. Use and efficacy of endotracheal versus intravenous epinephrine during neonatal resuscitation in delivery room. Pediatrics 2006; 118: 1028- 1032.
3. Healthy Newborn Network. India. Available from: <http://www.healthynewbornnetwork.org/country/india?page=9>
4. Bassani DG, Kumar R, Awasthi S et al. Causes of neonatal and child mortality in India: a nationally representative mortality survey. Lancet 2010; 376: 1853-60.
5. Lawn JE, Manandhar A, Haws RA, Darmstadt GL. Reducing one million

- child deaths from birth asphyxia: a survey of health systems gaps and priorities. Health Res Policy Syst 2007; 5: Pmid: 17506872.
6. Anne CC Lee., Simon Cousens Stephen N Wall., Susan Niermeyer. Neonatal resuscitation and immediate newborn assessment and stimulation for the prevention of neonatal deaths: a systematic review, metaanalysis and Delphi estimation of mortality effect; 2011, BMC Public Health. Available from: <http://www.biomedcentral.com/1471-2458/11/S3/S12>
7. Ogunlesi A Tinuade, Dedeke I Olabisi, Adekanmbi et al. Neonatal Resuscitation- Knowledge and practices of nurses in Western Nigeria. SAJCH. March 2008; 2(1): 23-25.
8. Khudhair Suad Hassoon. Evaluation Nurses' Practices toward Neonatal Resuscitation in the Delivery Room. KJNS. 2012; 2(3).
9. Waldemar A. Carlo, Linda L. Wright, Elwyn Chomba et al. Educational Impact of the Neonatal Resuscitation Program in Low-Risk Delivery Centers in a Developing Country. J Pediatr. 2009 April; 154(4): 504–508.
10. Laurel Bookmana, Cyril Engmannb, Emmanuel Srofenyohc et al. Educational impact of a hospital-based neonatal resuscitation program in Ghana. Resuscitation 81 (2010):1180–1182.

How to cite this article: Parvinder K, Yogesh K, Gurmeet K. Practices of nursing personnel regarding neonatal resuscitation. Int J Health Sci Res. 2015; 5(7):277-282.
