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The impact of special care newborn units on routine neonatal care practices in central India: observational study

Gaurav Tripathi¹*, Neha Mishra²

¹Department of Pediatrics, Kushabhau Thackrey District hospital, Rewa, Madhya Pradesh, India ²Department of Child Health Coordinator, Joint Director Office, Rewa, Madhya Pradesh, India

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*Correspondence: Dr. Gaurav Tripathi,

E-mail: drgtripathi@gmail.com

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ABSTRACT

Background: To address high infant and neonatal mortality rate (NMR) in the state, government of Madhya Pradesh and UNICEF adopted continuum of care from community to health facility as the core theme. This approach was first piloted with UNICEF support in Guna in the year 2007 and is now being scaled up state wide under National Rural Health Mission (NRHM). Special care new born units (SCNU) are being set up at district levels. First two such units were set up by Government of M.P with support from UNICEF in Guna and Shivpuri districts. After the successful Janani Suraksha Yojana (JSY) scheme, IMNCI would need to respond in new born care. The main objective of scheme was to reduce NMR and improving in quality of care of neonates. The aim of the study was to evaluate the impact of creating a sick newborn care unit (SNCU) in district hospitals on new born care practices and to evaluate the contribution of SCNU of Rewa division in improved neonatal survival.

Methods: Observational study was conducted during April 2014 to June 2014 at district Hospitals Satna, Sidhi, Shahdol, Umariya, Anooppur and Singrauli (high priority districts of Rewa division, Madhya Pradesh, India). Study subjects were 112 mothers of new born babies, 6 pediatricians posted in SCNU, 4 staff nurses from SCNU and 2 superintendents of hospitals. Data was collected using both qualitative and quantitative techniques by personal interview of staff and mothers of beneficiaries through preformed questionnaires.

Results: There is a reduction in NMR after the implementation of SCNU. Majority of the beneficiaries are motivated and aware about the new born care and were improving their knowledge about neonatal care. Staff of SCNU given multiple responses regarding the satisfaction from the facilities, mostly say (90%) that they are satisfied of facilities ad infrastructure though the staff posted there is not sufficient for the unit.

Conclusions: There is evidence that the knowledge and awareness regarding the neonatal care is improved due to the SCNU and it also contributed to the reduction in neonatal mortality rate. Most of the mothers are satisfied with the services and follow-up, which shows that SCNU helps to improve neonatal care. Majority of staff are satisfied by the infrastructure and services in spite of insufficiency in the number of staff.

Keywords: Neonatal care, Neonatal mortality, SCNU

INTRODUCTION

An estimated 130 million babies are born each year and about 4 million of them die in the neonatal period. Nearly 99% of all neonatal deaths occur in low- and middle-income countries. A quarter of the global neonatal deaths occur in India and little progress has been made in

reducing it in the last decade. A combination of universal outreach and family-community care intervention at 90% coverage has been estimated to avoid 18 to 37% of neonatal deaths. These interventions include family care of the newborn, essential newborn care, resuscitation of the newborn, care for low birth weight babies, and emergency newborn care. However, concurrent

expansion and scaling-up of clinical care for sick neonates is essential to achieve the reduction in neonatal deaths to meet the millennium development goal for child survival.² Further, inequity is high for neonatal care requiring skilled clinical interventions. Strengthening the clinical services within the health care system is therefore a much needed and neglected component of a comprehensive intervention for reducing neonatal deaths.

It is feasible to create an effective modern SCNU in a district hospital in the health care system by largely mobilizing internal resources. The newborn health challenge faced by India is more formidable than that experienced by any other country in the world. It is estimated that out of 3.9 million neonatal deaths that occur worldwide, almost 30% occur in India.²

The traditional practices like applying cow dung on the umbilical stump, oil instillation into nose etc also contribute to newborn's risk of morbidity and mortality. The purpose of this study is to assess the correct knowledge, attitude and practice of postnatal mothers regarding the newborn care.³

In Madhya Pradesh the neonatal mortality rate (NMR) is highest in India and the program to reduce it has not been successful effectively. It was proposed earlier that just as reduction of maternal mortality rate requires facilities for caesarian section and blood transfusion (emergency obstetrics care) in addition to antenatal care, effective and accelerated reduction of NMR needs back-up support of modern sick newborn care in hospitals with a large number of deliveries.⁴ In addition, sick newborn stabilization units at smaller hospitals in the periphery and optimum transportation of ill neonates to special care newborn units (SCNUs) are needed to support a meaningful referral mechanism for primary newborn care. In a preliminary report, it had shown that creating and running a small modern SCNU, based on level II criteria of the national neonatology forum, India in a remote and underdeveloped district can have a substantial impact on NMR of the whole district.5,4 In this communication, the results of follow-up of such functioning units and its impact on the NMR at the district hospitals and the calculated impact on the whole division was reported.

SCNU in Madhya Pradesh

The characteristics of these units are broadly based on the technical guidelines established by the Indian national neonatology forum in 1991. NNF, India, has published the norm for development and accreditation of Level-II special care neonatal units.⁶

Level-II care is suitable for care of sick neonates above 1,500 g birth weight who have physiologic immaturity such as apnea of prematurity, inability to maintain body temperature, or inability to take oral feedings; who are moderately ill with problems that are expected to resolve

rapidly and are not anticipated to need subspecialty services on an urgent basis; or who are convalescing from intensive care and does not include mechanical ventilation, total parenteral nutrition and complicated procedures and major neonatal surgery.

Rationale of the study

Rewa although relatively developing division of Madhya Pradesh, India with a high NMR was selected to create a near level II SNCU in the district hospitals with a large number of deliveries.⁶ Even with large number of deliveries in this hospitals, all the sick newborns were transferred to medical college or private neonatal hospitals and sick newborns were not referred from periphery to this hospital. Creation of SCNU in district hospitals has improved the situation. This study will bring out the impact of this facility in newborn care practices. This is the new concept in research field.

METHODS

It was an observational study done in district hospital SCNU of high priority districts of Rewa division, Madhya Pradesh namely Satna, Sidhi, Shahdol, Umariya, Anooppur and Singrauli from April 2014 to June 2014. A total of 124 subjects were enrolled in the study comprisisng of 112 mothers of newborn admitted in SCNU, 6 paediatricians posted in SCNU, 4 staff nurses and 2 hospital superintendents.

Inclusion criteria

- Mothers of neonates who admitted in SNCU of district hospitals
- Study subjects who willingly consented to participate in the study.

Exclusion criteria

- Study subjects who were not willing to participate in the study
- Newborns referred to Medical College for further management.

Study procedure

As the first step of the study, a research protocol was developed. The topic was selected, aim and objectives were specified. Literature relevant to the study was searched and reviewed. Appropriate tools necessary for data collection were developed on the basis of the objectives of the study.

After going into the field, the first step was to meet the CMHO and superintendent of hospital and obtain the necessary information and documents from them with their consent. The research plan and study objectives were explained to them in detail at the beginning.

Data were collected at SCNU in district hospitals in Rewa and the questionnaires prepared for the various categories of interviewees. A formal consent was taken before beginning the interviews and they were told that the information given by them would be kept confidential and would be used only for the purpose of the study.

The various interviewees were asked questions related to the neonatal care and impact of SCNU in particular hospital. With a view to finding out that how many mothers were actually aware about the neonatal care and is there any improvement in her knowledge and misperception about neonatal care. Along with the mother, the pediatrician, staff nurse and superintendent were also interviewed regarding impact of SCNU, using their knowledge and skills, etc.

The responses of the interviewees were entered into a preformatted proforma. The possible biases that could have affected the responses were also taken into consideration. These responses were then appropriately coded for the purpose of descriptive analysis and were analyzed statistically.

RESULTS

Before starting of SCNU, referral rate were high from district hospitals to tertiary centers. After the implementation of SCNU facility, there is significant reduction in early neonatal death, late neonatal death and referral to higher centers. It is reflected clearly in the following table

Table 1: Information from labour room practices before and after SNCU.

Column 1	Column 2	Column 3
Year	2012-13	2013-14
Total live birth	8916	9164
Total still birth	112	120
Total early neonatal death	352	176
Total late neonatal death	172	44
Referral	692	34

Mothers were interviewed personally about the awareness of newborn care practices and it was found that majority of them were aware about it. This awareness was better in mothers with newborns in SCNU than in wards.

Table 2: Awareness about newborn care practices among mothers in SCNU.

Newborn care practice awareness of mothers	Yes	%	No	%	Don't know	%
Temperature Maintainance	102	91.1	4	3.6	6	5.35
Cord care	106	94.6	2	1.7	4	3.6
Breastfeeding within first hour	98	87.5	10	8.9	14	12.5
Importance of vaccination	108	96.4	2	1.8	2	1.8
Exclusive breast feeding for 6 months	106	94.6	4	3.6	2	1.8
Kajal application	6	5.35	102	91.1	4	3.6
Using gripe water	10	8.9	100	89.3	2	1.8
Burping technique	104	92.8	2	1.8	6	5.35
Putting oil in nostrils and ears	2	1.8	102	91.1	8	7.1
Cleaning and sponging of baby	108	96.4	2	1.8	2	1.8

DISCUSSION

In the recent past studies on neonatal care practices and impact of SCNU also gained popularity and usefulness, as it improves the knowledge and awareness about the neonate care in the public health facilities. Patient's attendant feedback is necessary to identify because that need to be resolved improving health care practices. Even if they still do not use this information and causes to reduce neonate mortality and improve health care of neonates, these information triggers a real change in their facilities and perception of the patient.

It is hypothesized that impact of SCNU is good in neonatal care and creation of SCNU is reducing NMR. This study was conducted at SCNU of high priority districts of Rewa division (Madhya Pradesh, India) with an objective to evaluate the impact of creating SCNU in district hospitals on newborn care practices and contribution of SCNU in improving neonatal survival.

To corroborate the similar study was done in west Bengal, showing that after establishment of SCNU there is an improvement in labor room practices. According to the study there was reduction in NMR and most important referral to other centers was less.⁷

Against the finding of our study the study was done in South India, showing that there were only 55% of people had knowledge about the neonatal care.³ In present observation 91% mother knowing regarding temperature maintenance of the baby, only 5% mothers don't know how to maintain the temperature of the baby. 94% mothers were aware of the cord care of baby, 3% mothers

don't know about the cord care they are applying coconut or mustard oil in cord. In present study 91% respond that kajal application should not be used. 89% mothers have knowledge that gripe water should not be used and in our study awareness regarding vaccination and burping technique were seen. According to this study, mothers of baby who are admitted in SCNU are more knowledgeable than the mother in general ward. Probably the reason behind this was concern and motivation of staff posted in SCNU unit.

The highest levels of satisfaction of staff were encountered with the infrastructure, reducing neonatal mortality and facilities. These facilities are provided by as per guideline of NRHM and UNICEF. Training for the newborn care has been done for the staff and trained nursing staff is posted. Insufficient number of staff is the biggest drawback of the unit. The lowest score is for the lack of staff and heavy work load. These two factors are easily resolved with the help of administration and higher authorities and senior staff of the respective hospitals.

As per the guidelines of SCNU 4 pediatrician, 12 nursing staff and 2 lab assistant should be posted in SCNU. Under NRHM, nursing staff and doctors are posted on contract basis, but still there is lack of staff in many units.

According to the superintendents of the hospitals the impact of SCNU is good as district hospital is one of the biggest maternity center of the district. The service and facilities were satisfactory, but shortage of staff is the drawback of the hospital.

According to the hospital records from May 2013- April 2014, 2316 newborns admitted in hospital among them 87% patient cured 12% died and 2% reffered to tertiary care hospital.

CONCLUSION

The millennium development goal (MDG) 4 of the United Nations millennium declaration calls for a two thirds reduction of the under-five mortality rate between 1990 and 2015. The national population policy of India has set a goal of achieving a NMR <20 by 2010. The study has shown the synergistic effect of SCNU in new born care practices. It increased new born care practices and decreased neonatal mortality. According to secondary data NMR reduced from in 44 in 2011-12 to 36 in 2013-14 in Madhya Pradesh, India. In SCNU most of the beneficiaries (mothers) improved their knowledge about neonatal care and awareness of the health of their child. They were also changing their perceptions about new born care. Nursing staff and pediatricians teach them

how to give bath to the baby, avoiding kajal application, oil in nostrils which is not good for the baby.

Majority of staff were motivated about the neonatal care. Mostly staff were not satisfied due to lack of number of staff. As per guidelines of SCNU the staff which is posted there is not sufficient. In Rewa division, impact of SNCU shows the synergistic effect.

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