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NEONATAL MORTALITY – AN EXPERIENCE BY VERBAL AUTOPSY

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ABSTRACT

Objective: To find out and understand the common causes of neonatal deaths using verbal autopsy as a tool. **Method:** Open ended verbal autopsy Questioner Method applied to a cross section of 47 neonatal deaths that occurred in previous 6 months (Nov. 05 – April 06). Study was carried out on purposively selected villages of four talukas of Vadodara district of Gujarat in India, during May 2006 to August 2006. **Results:** Out of 47 were neonatal deaths 36.2% died due to prematurity, 21.3% due to Birth Asphyxia and 10.6% of deaths were due to Septicemia. Deaths on the first day were 42.6%; of whom 40% died due to birth asphyxia and 45% due to prematurity. **Conclusion:** Using verbal autopsy tools, Common causes of neonatal deaths found, were prematurity, birth asphyxia and sepsis. More number of deaths occurred during first day of life.

Keywords: verbal autopsy, neonatal deaths, causes

INTRODUCTION

Each year, 20 percent of the world's infants-an awesome 26 million-are born in this vast and diverse country. Of this number, 1.2 million die before completing the first four weeks of life, a figure amounting to 30 percent of the 3.9 million neonatal deaths worldwide. India is home to the highest number of both births and neonatal deaths of any country in the world. The current neonatal mortality rate (NMR) of 44 per 1,000 live births accounts for nearly two-thirds of all infant mortality and half of under-five child mortality. Over one-third of all neonatal deaths occur on the first day of life, almost half within three days, and nearly three-fourths in the first week and same problem is faced by Gujarat with NMR of 42 per 1,000(SRS 2000) which share 4.5 percent of the total NMR burden in India.¹ Reducing neonatal mortality will be necessary for

achievement of the targets set for child mortality reduction under the United Nations millennium development goals (MDG) (Haines and Cassels, 2004)².

More than two-thirds of the world's population lives in countries that lack a reliable system for issuing medical death certificates, leaving the true scale and distribution of disease in serious doubt. The main tactic for filling that gap is verbal autopsy, which assigns a probable cause of death based on interviews with families about the deceased's symptoms. "Verbal Autopsy" is the collection of post-mortem information about a deceased individual through questionnaire or interview of household members, friends and others (including health care workers) who cared for the person at home or are familiar with the circumstances of the death³. Verbal autopsy methods are most often used in locales where formal medical care is difficult to access. In such locales, deaths often occur at home and official records are inconsistently available.

Verbal autopsies may provide important public health information about factors related to deaths and actions taken to address the medical problems and prevent the death. Investigators must adhere to cultural norms and sensitivities when approaching and asking for information from family members and other informal caregivers of the deceased person. Study teams, especially research interviewers who will conduct these interactions, require training in local customs about these issues, particularly regarding awareness of the pressures on respondents to portray situations in a particular manner, sensitivity to the distress respondents may feel related to the interview/questionnaire, and approaches for handling high levels of distress. Cause-of-death data derived from verbal autopsy (VA) are increasingly used for health planning, priority setting, monitoring and evaluation in countries with incomplete or no vital registration systems. In some regions of the world it is the only method available to obtain estimates on the distribution of causes of death. Currently, the VA method is routinely used at over 35 sites, mainly in Africa and Asia. The exact cause of death can be known by postmortem autopsy. However, this is not feasible on a large scale, particularly in developing countries like India. In this difficult situation, a post death analysis by verbal autopsy is used as a proxy to determine the possible causes of death. In this research we used VA as a research tools to investigate the neonatal deaths.

MATERIAL AND METHODS

The present study was undertaken on selected four talukas of Vadodara district (e.g. Chota Udepur, Pavi- Jetpur, Kawant and Naswadi), where a partnership was initiated between the Health Department of Government of Gujarat and a local NGO- Deepak Charitable Trust. The study area covered 25 villages (out of approximately 200 total villages of each talukas) each in the selected four talukas, spread over 29 PHCs and 4 CHCs which have been designated First Referral Units (FRUs)

under RCH. Each of the taluka had one taluka coordinator (TC) and 14 outreach worker (ORWs), initial survey was carried out by ORWs who identified the infant deaths and finally TC and a team of doctors (Resident Doctors of PSM dept. and Pediatric Dept. of Medical College Baroda) went out there and carried out verbal autopsy of neonatal deaths that occurred in previous 6 months (Nov. 05 – April 06). Study period consists of 4 months of data collection from May '06 to August '06. Final confirmation of verbal autopsy was verified by associate professors of PSM dept. and Pediatric dept. of Medical College Baroda). Prior consent was taken for verbal autopsy procedure. The standard verbal autopsy questionnaire suggested by WHO³ was used for the same. Questionnaire was administered to the care giver (usually the mother) of the child. The questions were explained by the interviewer to the caregiver in local language. Sufficient time was given to recall the events during illness. It usually took 60 minutes to complete an interview. Diagnosis was made on the basis of the answer given by the caregiver to the questions asked in the questionnaire. Open-ended questions were freely probed to follow up particular aspects as required. This descriptive account also was taken into consideration while arriving at the diagnosis. Total no. deliveries (whether home delivery or institutional delivery) occurred in Pavi jetpur(2535), Chota Udepur(2692), Naswadi (796) and Kawant(1053) during april 2004 to march 2005 were reported by district health office of baroda and with that information in background we carried out this verbal autopsy.

RESULTS

Out of the 47 neonatal deaths reported (42.6 % - Pavi jetpur, 23.4 % - Chota Udepur, 17 % - Naswadi and 17 % Kawant), 36.2 % (17) died due to prematurity, 21.3 % (10) due to Birth Asphyxia and 10.6 % (5) of deaths were due to Septicemia. Deaths on the first day were 42.6 % (20); of whom 40 % (8) died due to birth asphyxia and 45 % (9) due to prematurity.

In 72.4% cases death occurred in early neonatal period. 59.6 % patients were male and 40.4 % were female. 80.9% mothers had not received ANC during antenatal period, although TT coverage was 68.1%. 80.9% deaths occurred in cases where deliveries were conducted at home, of which 48.9% deliveries were conducted by untrained Dais. Treatment was not received in case of 78.7% neonatal deaths. 29.8% deaths occurred in case of fifth birth rank or more and in 66% we found family size of >5 member. 63.8% of the deaths reported were in case of illiterate mother. No neonates had received any vaccine.

DISCUSSION

Majority of patients died during first seven days of whom the majority died in first 24 hours Singhal et al reported 42% of total neonatal deaths during the first seven days of life.⁴ In majority of the cases mothers were illiterate and received ANC rarely. At the same time, more number of mothers delivered at home by untrained die while in over three fourth of the neonatal deaths no treatment was received. More number of mothers who lost neonates had a big family size.

CONCLUSION

Common causes of neonatal deaths, as per the Verbal Autopsy, were Prematurity, Birth Asphyxia and Sepsis and more number of deaths occurred during first day of life. Similar observations have been made in earlier studies of Singh V and Dutta N et al.^{5,6} Majority of deaths occurred where mother had not received any ANC visit. Birth rank makes a difference along with the size of the family. The fact that many babies (42.6%) died within 24 hours of delivery, sometimes with no recognized symptoms, indicates the need for early intervention for those most at risk. The study identified risk factors that could be identified during delivery (complications, premature/small babies, and multiple births). Attendants at delivery could have a key role if trained in resuscitation and through notifying paramedics

about high risk babies to be given an immediate post-natal check-up in the home. This may be feasible in areas served by NGOs, where efforts can be augmented. Increasing the number of institutional deliveries would be a relevant strategy for the same.

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Table 1 Total number deliveries occurred during April 2005 to March 2006 in selected 4 talukas of Vadodara district - India.

Name of Taluka	Total No. of deliveries
Pavi Jetpur	2535
Chota Udepur	2692
Naswadi	796
Kawant	1053

Table 2 – Causes of Neonatal Mortality

No	Causes	1 st day of life				0-28 days (Total)
		Immediate	0-7 days	8-28 days	Neonatal	
1	Septicemia	0	2	3	5 (10.6%)	
2	Prematurity	9	15	2	17 (36.2%)	
3	Bronchopneumonia	1	2	1	3 (6.4%)	
4	Birth asphyxia	8	9	1	10 (21.3%)	
5	Hypothermia	1	2	0	2 (4.3%)	
6	Neonatal seizures	0	1	0	1 (2.1%)	
7	SIDS	0	1	1	2 (4.3%)	
8	AGE	0	0	1	1 (2.1%)	
9	Congenital anomaly	1	2	2	4 (8.5%)	
10	Severe dehydration	0	0	1	1 (2.1%)	
11	Intestinal obstruction	0	0	1	1 (2.1%)	
	Total	20 (42.6%)	34 (72.4%)	13 (27.6%)	47	

SIDS – sudden infantile death syndrome

AGE – acute gastroenteritis

Illustration:

PSM – Preventive and Social Medicine

PHC – primary health care

CHC – community health center

SC - sub center

ANC – antenatal care

TT – tetanus toxoid

VA – verbal autopsy

NGO – Non Government Organization