FACTORS ASSOCIATED WITH INCREASED NEONATAL SEPSIS IN DAR ES SALAAM CITY

By

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A dissertation submitted in partial fulfilment of the requirements for the degree of Master of Public Health of the Muhimbili University of Health and Allied Sciences

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CERTIFICATION

The undersigned certifies that he has read and hereby recommends for acceptance by Muhimbili University of Health and Allied Sciences, a dissertation entitled **Factors Associated with Increased Neonatal Sepsis in Dar-es -Salaam City** in partial fulfilment of the requirements for the degree of Master of Public Health of the Muhimbili University of Health and Allied Sciences.

.....Xmnyika.....

DR. K. S. MNYIKA

(Supervisor)

Date ..... 13th August 2009

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DEDICATION

This Dissertation is dedicated to my wife Jacqueline Lema and my parents Dominic and Magdalena.

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DEDICATION

This Dissertation is dedicated to my wife Jacqueline Lema and my parents Dominic and Magdalena.

LIST OF ABBREVIATION

CI	Confidence interval.
DAS	District Administrative Secretary
DMO	District Medical Officer
MOHSW	Ministry of Health and Social Welfare.
MUHAS	Muhimbili University of Health and Allied Sciences.
RMO	Regional Medical Officer.
WHO	World Health Organisation.
TDHS	Tanzania Demographic Health Survey.
UNDP	United Nation Development Program.

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CHAPTER ONE

1.0 Introduction

1.1 Background information

The infant mortality rate in Tanzania has decreased from 99 deaths per 1000 live births reported in 1999 to 68 per 1000 live births in recent years. On the other hand, mortality rate among children under the age of five years appears to have increased from 140 deaths per 1,000 to 161 per 1000 in the 1990's (TDHS, 2005).

Data from Kenya indicate that mortality rate for neonates admitted in general paediatrics wards at Kenyatta National Hospital in Nairobi Kenya is high, with almost half the deaths occurring in the first twenty four hours of admission. Of the 308 admissions, 33.4% were low birth weight, 5% being very low birth weight. The mean duration of stay was nine days for those who survive to discharge and four days for those who died. Of those who died, 49% died within 24 hours of admission. The frequently cited causes of death were suspected to be neonatal sepsis, pneumonia, dehydration and hypothermia (Simiyu, 2003).

In the last century public health has achieved a great deal of success in reducing mortality among children. Despite this success there has been less attention given to the issue of neonatal health in developing countries. It has been noted that the issue of neonatal health fell due to lack of accurate data and misconception in many developing countries that neonatal care is very costly (Murray, 1997).

The need to examine the issue of health of the newborns in developing countries is clear as neonatal deaths account for about half the total newborns mortality around the world (Ahmad et al 2000). Further reduction of infant death now clearly depends on the reduction of neonatal mortality.

Factors associated with high level of neonatal sepsis in Tanzania include (UNDP 2007):

1. Limited access to health care facility.
2. Insufficient number of skilled health workers.
3. Inadequate health care services.
4. Limited community involvement on health.

According to Cloherty et al 1991, the risk factors for contracting neonatal sepsis are categorised into 2 as follows:

A. Major risk factors

1. Prolonged rupture of membranes for more than 24 hours. This condition occurs before the onset of labour and is characterised by leakage of amniotic fluid.
2. Intrapartum maternal fever of higher than 38 ^{o}C (higher than 100.4 ^{o}F). This condition occurs due to infection during pregnancy.
3. Chorioamnionitis which is caused by premature rupture of membranes and multiple intrapartum vagina examination.

B. Minor risk factors.

1. Twin gestation is likely to end up in neonatal sepsis due to the fact that mothers in such condition are more prone to get obstructed labour, retain second twin and locked twins.
2. Premature infants born before 37 weeks of gestation are more prone to sepsis because of low immunity.
3. Maternal leukocytosis (White blood cell count of more than 1500) that indicates presence of infection in blood which can cross placenta and infect foetus.
4. Group B Streptococcus can cross placenta of the mother and cause neonatal sepsis (Cloherty1991).

1.2 Aetiology

1. Group B Beta-haemolytic Streptococcus.

This is a gram positive coccus with incidence of 2-4 per 1000 live births. These bacteria can ascend through birth canal in premature rupture of membrane (if membrane ruptured 18 hours before birth) and infect foetus. Other conditions are maternal bleeding (placenta praevia and abruptio placenta), precipitate delivery and maternal infection particularly urinary tract.

2. Escherichia coli.

This is a gram negative enteric microorganism which accounts for 70% of early onset of neonatal sepsis.

3. Listeria monocytogenes.

Other pathogens are:

1. **Haemophilus influenza** which is a type of bacteria that has been increasingly identified in premature neonates.

2. **Staphylococci** which account for 30 to 50% of late-onset of neonatal sepsis cases and are most frequently due to intravascular devices particularly umbilical artery or vein catheter (Cloherty 1991).

1.3 Problem statement

Available data in Tanzania Ministry of Health and Social Welfare show that the incidence of neonatal sepsis is increasing. For example in Dar es Salaam in the year 2000 there were 304 cases of neonatal sepsis per 1000 deliveries reported, in 2001 there were 586 cases of neonatal sepsis per 1000 deliveries reported, in 2002 there were 407 cases of neonatal sepsis per 1000 deliveries reported and 2003 there were 669 cases of neonatal sepsis per 1000 deliveries reported (TDHS, 2005).

The incidence rates of neonatal sepsis reported in all the Dar es Salaam City Council hospitals show rising trend. For example by the year 2007, there were 296 cases of neonatal sepsis per 1000 deliveries reported at Mwananyamala hospital, 230 cases of neonatal sepsis per 1000 deliveries reported at Temeke hospital and 260 cases of neonatal sepsis per 1000 deliveries reported at Amana hospital. The current study was intended to investigate the contribution of socio-cultural factors in neonatal sepsis.

1.4 Rationale of the study

This study is useful for understanding socio-cultural factors that contribute to increased incidence of neonatal sepsis which seem to be very important in Dar es Salaam City.

The findings in this study are useful for relating other studies of similar nature done elsewhere in Africa and other parts of the world when developing appropriate intervention measures to control neonatal sepsis.

1.5 OBJECTIVES

1.5.1 Broad Objective

To determine the socio-cultural factors associated with increased incidence of neonatal sepsis in the Dar es Salaam City.

1 .5.2 Specific Objectives:

1 To determine the local health practices and beliefs associated with increased risk of neonatal sepsis in Dar es Salaam.

2 To describe the cultural behaviours which increase the risk of contracting neonatal sepsis in Dar es Salaam.

3 To determine awareness of the mothers about neonatal sepsis in Dar es Salaam.

CHAPTER TWO

2.0 LITERATURE REVIEW

The leading causes of neonatal death in developing countries include neonatal infection (32%), birth asphyxia and injuries (29%), congenital anomalies (10%), and complications of prematurity (24%) and low birth weight (5%) (Duke et al., 2000).

Despite the difficulty in obtaining accurate data on causes of neonatal mortalities in developing countries, it is estimated that sepsis is one of the current leading global disease among neonates along with acute respiratory infection, tetanus neonatorum, diarrhoea and meningitis. According to recent estimates, approximately 750,000 cases of neonatal sepsis (with 300,000 deaths) occur in developing countries each year (Stoll, 2001). However, the number is likely to be under estimate due to lack of accurate data on early neonatal death. Neonatal sepsis refers to a clinical syndrome characterized by systemic signs of infection and accompanied by bacteraemia in the first month of life (Klein, 2001).

Neonatal infection can be acquired in utero transplacentally, through the birth canal during delivery and from external sources after birth. In utero infection which occurs any time before birth results from overt or subclinical maternal infection. Consequences depend on the agent and timing of infection in gestation which include spontaneous abortion, intrauterine growth retardation, premature birth, stillbirth, congenital malformation and neonatal infection.

Intrapartum infection occurs from passage through an infected birth canal or by ascending infection if delivery is delayed after rupture of membranes. Bacterial agents include group B Streptococci, enteric gram-negative organisms (primarily Escherichia coli), gonococci and chlamydia. Postpartum infections are acquired from contact with an infected mother either directly (eg, TB) or through breastfeeding or from contact with health care practitioners and the hospital environment (Schrag, 2002)

Infections such as tetanus, pneumonia, septicaemia and meningitis account for 30–50% of neonatal deaths in developing countries. Neonatal sepsis is a life threatening but proper newborn care can significantly reduce the risk of infection and death among neonates. It is believed that many cases of infection that occur among newborn babies soon after birth are associated with caregivers, improper practices of newborn care such as inadequate practices of hygienic birth practice, failure to wash hands and equipment, delay to start breastfeeding after birth, inappropriate cord care and inadequate bathing practices. Incorrect practices which are potentially harmful for newborns can be prevented by encouraging caregivers to apply appropriate practices with respect to their culture (Osrin et al, 2002).

A study reported by Klein indicated great potential of infection in neonates through contact with household animals or infected persons within the household. These calls for our attention to the problem of sepsis neonatorum in the urban poor slums of developing countries, as many pregnant women deliver their babies in overcrowded housing where

contact between pathogenic organisms and infants are more likely to occur. In addition to these factors, socioeconomic factors surrounding mothers and infants are also thought to be important in determining infants at risk of infection. For example, low levels of income, poor housing and poor nutrition associated with a low socioeconomic status have been identified as risk factors for neonatal sepsis (Klein, 2001).

Gram negative bacteria accounts for 67.2% of neonatal sepsis cases, of which Pseudomonas aeroginosa being the most common organism (38.3%) followed by Klebsiella (20.4%) and E coli (8.5%). Similar patterns have been reported in Trinidad and Southern Israel (Orret et al, 2001).

Staphylococcus aureus was the second most common organism. This organism was determined as the main cause of neonatal sepsis in a teaching hospital in Karachi, Pakistan. Gram negative organisms were responsible for almost half of the episodes of early onset neonatal sepsis in their series (Kilani et al, 2000). Group B streptococcus grew from 46% of positive blood cultures, and 52% of gastric aspirates were positive for group B streptococcus. Group B streptococcus being the most common organism particularly in early onset of neonatal sepsis which was first reported in Saudi Arabia in the early 1980s (Ohlsson *et al*, 1986). There was also a study carried out to determine whether cleaning the birth canal with an antiseptic solution at delivery reduces infections in mothers and their newborn babies. The results of the study showed cleaning the birth canal with chlorhexidine reduces the risk of neonatal infections (Ahmad et al, 2005).

Any changes in neonates normal behaviour should call for immediate attention as such infection especially in premature babies, can rapidly lead to fatal conditions. Prevention and control measures of sepsis emphasize prompt recognition of signs and symptoms, early diagnosis through blood tests, blood and urine cultures or x-rays, followed by appropriate treatment (Klein, 2001). Prevention measures also need to focus on reducing other risk factors associated with sepsis through promoting adequate maternal education regarding childhood immunization, routine check-ups, newborn care (e.g., umbilical cord care), as well as domestic hygiene and most importantly improving socioeconomic conditions (Klein, 2001). There are various signs of the disease for example diminished spontaneous activity, less vigorous sucking, apnoea, bradycardia, temperature instability, respiratory distress, vomiting, diarrhoea, abdominal distension, seizures and jaundice. Neonatal sepsis occurs in 0.5 to 8.0/1000 births. The highest rates occur in low-birth-weight infants, those with depressed respiratory function at birth, and those with maternal perinatal risk factors. The risk is greater in males than in females by the ratio of 2:1 in neonates with congenital anomalies (Schrag, 2002).

The World Health Organization (1996) provides guidelines for essential newborn care practices. The guidelines consist of cleanliness, wrapping a newborn in warm clothes, early and exclusive breastfeeding, eye care, immunization, management of newborn illness, and the care of the low birth weight newborns. These practices are also important in prevention of infections by promoting clean and safe newborn care practices, such as clean cord care, proper breastfeeding practices, wrapping a newborn in warm clothes and immunization. These practices are also particularly important in preventing sepsis

acquired after birth. The principle of cleanliness at birth as set by the WHO (1996) includes clean perineum, nothing unclean to be introduced into the vagina, clean delivery surface, clean equipment (e.g., sterile razor blade to cut the umbilical cord), clean cord stump and the practitioners having clean hands (WHO, 1996).

Many studies concerning the traditional practices of neonatal care have been conducted with special attention to the mothers birth practices at home (Osrin et al. 2002). In Nepal, Osrin and his colleagues (2002) identified several birth practices related to neonatal health such as compromised hygiene practices (e.g. inadequate hand-washing), inadequate breastfeeding practice, delay of wrapping the baby after birth and bathing the baby soon after birth. They further discovered that traditional beliefs were an underlying cause of some of these birth practices. In this instance, the traditional notion of pregnancy as a hot state and the postpartum period as a cold state led to the practice of heating up the labour rooms after the delivery (Osrin et al., 2002).

Therefore, the previous studies showed that the leading cause of neonatal death in developing countries is neonatal sepsis. Several studies done in Africa and Asia have identified various causes of neonatal sepsis, how to investigate and how to control. The aim of this study was to investigate the contribution of social cultural factors associated with neonatal sepsis in order to suggest appropriate interventions.

CHAPTER THREE

3.0 Methodology

3. 0 .1 Description of the Study Area

This study was conducted in the city of Dar es Salaam which is the largest commercial area in Tanzania. The city covers about 11,200 square kilometres and according to the national census of the year 2002 the city had 2,497,940 inhabitants (Population Census, 2002). Administratively, the city of Dar es Salaam is divided into three municipalities which are:

1. Kinondoni municipal council.

2. Ilala municipal council.

3. Temeke municipal council.

According to the National Population Census of 2002, Kinondoni municipality had a population of 1,083,913 residents, Ilala municipality had 634,924 residents while Temeke municipality had 768,451 residents.

The total number of health facilities in Dar-es-salaam are as follows:(see Table 1)

Table 1: Distribution of health facilities in Dar es Salaam.

	GOVERMENT	PRIVATE
Hospitals	3	22
Health Centres	6	26
Dispensaries	64	403
Total	73	451

Distribution of Government health facilities in Dar es Salaam is as follows (see Table 2)

Table 2: Distribution of Government health facilities in Dar es Salaam.

	Hospitals	Health centres	Dispensaries
Kinondoni municipal council	1	2	29
Ilala municipal council	1	2	13
Temeke municipal council	1	2	22
Total	3	6	64

3. 1. 1 Study Design

The study design was cross sectional study which was done in post delivery and neonatal wards in Mwananyamala, Temeke, and Amana hospitals in Dar es Salaam.

3.1. 2 Target and study population

The target population consisted of post delivery mothers who had normal delivery more than one time in their reproductive lifetime and before discharge from the hospital and mothers/caretakers who had been admitted with their babies under one month of age. These were recruited into the study from Mwananyamala hospital in Kinondoni municipality, Amana hospital in Ilala municipality and Temeke hospital in Temeke municipality. At the time of the study, the average number of deliveries per day in Mwananyamala hospital was 45 deliveries, Temeke hospital 35 deliveries and Amana hospital 40 deliveries which were 120 deliveries per day in the three hospitals. The average number of admissions of mother/caretaker with newborn babies suffering from neonatal sepsis were 10 patients at Mwananyamala hospital, 8 patients at Amana hospital and 7 patients at Temeke hospital.

Initially we used purposeful sampling technique to select names of 5 post delivery mothers who had more than one delivery in their lifetime without any complication (in order to know about previous deliveries and neonatal care) and names of 3 mothers/caretakers who were admitted with newborn babies suffering from sepsis. We then wrote their names on pieces of paper to make a total of 8 pieces of paper. We

mixed the 8 pieces of paper thoroughly and thereafter we selected 5 participants using simple random sampling technique from each hospital per day to make 15 participants in all hospitals per day i.e. 5 participants from Amana hospital, Mwananyamala hospital 5 participants and Temeke hospital 5 participants. Therefore for a period of two weeks except weekends we collected 66 participants from Mwananyamala hospital, 65 participants from Temeke hospital and 65 participants from Amana hospital to make a total of 196 participants.

3.1.3 Inclusion Criterion

All mothers/caretakers with newborn babies below one month of age, admitted in neonatal departments suffering from neonatal sepsis and post delivery mothers in post delivery wards in Mwananyamala, Temeke and Amana hospitals were eligible for inclusion.

3.1.4 Sample Size

Sample size was determined by using the formula:-

$$n = \frac{Z^2 P(100-P)}{\varepsilon^2}$$

Where:

n = Minimum sample size.

Z= Standard normal deviation corresponding to 95 %, confidence level = 1.96.

P= Proportion of the mothers / caretakers admitted with their newborn babies.

(Estimated at 50%).

ε = Margin of error, which is 7%.

Therefore;

$$n = \frac{(1.96)^2 \times 50\,(100 - 50)}{7^2}$$

$$= 196.$$

Therefore the minimum sample size required was 196 participants

3. 2.1 Plan for Data collection and Data collection Tool.

Three municipal council hospitals were involved namely Mwananyamala hospital, Amana hospital and Temeke hospital.

Three research assistants collected data using structured questionnaires consisting of closed and open ended questions. The questionnaire was developed in English and translated into Swahili language by principal investigator. During data collection Swahili version was used for the interviews. The selection of research assistants was based on fluency in English and Swahili languages. Research assistants were trained for one day on how to administer the questionnaires. The principal investigator supervised them everyday to make sure the sampling criteria were followed and questionnaires were correctly filled. Three research assistants were selected so as to have one research

assistant in each hospital. Pilot study was done before data collection by principal investigator and research assistants. The pilot study was done to thirty respondents (10 respondents in Mwananyamala hospital, 10 respondents in Temeke hospital and 10 respondents in Amana hospital). Following pilot study the questionnaires were revised and followed by correction of mistakes. Changes were incorporated in the final version that was used in the actual study.

3.2.3 Data Management

We completed all written information and data entry each day after the field work. Data cleaning was done to check for completeness and accuracy for all questionnaires, before and after entering in the computer. Data entry was done using Epi info version 6.0 by Principal Investigator followed by data cleaning. Dependent variables included mothers /caretaker who used traditional medicine to their newborn babies, mothers /caretaker who did cultural procedures to their newborn babies and mothers/caretaker who visited traditional healers. Descriptive data analysis was performed including frequency and crosstabulations.

3.3.1 Ethical Issues

Ethical clearance was obtained from Muhimbili University of Health and Allied Sciences Ethical Research Committee. Permission to conduct research was obtained from relevant authorities including District Executive Directors, District Medical Officers and the Medical Officers Incharge of the three municipal council hospitals.

Each study participant was informed on aims and procedures of the study. Written informed consent was obtained from each participant to protect human rights and to assure confidentiality.

CHAPTER FOUR

4.0 Results

4.1 Social Demographic Characteristics

Study population consisted of 196 mothers aged between 15 and 40 years with a mean age of 27 ± 5.5 years (Mean ± standard deviation). Among these, 66 participants were from Mwananyamala hospital, 65 participants from Temeke hospital and 65 participants from Amana hospital. Table 3 shows that the highest percentage of the study participants 51 (25.7 %) were between the ages of 25 and 29 years.

We found that the majority of the study participants were housewives 148 (76.0%) and 33 (16.2 %) of the study participants worked in private companies while 15 (7.8 %) worked in government institutions.

Furthermore Table 3 shows that the majority of the mothers 150 (76.5%) had completed primary education and 46 (23.5 %) completed secondary education.

The results also show that the majority of study participants 143 (73.3 %) were married mothers and the minority of 6 (2.6 %) were divorced, separated and widowed. Others 47 (24.1%) were single mothers.

Table 3: Social–Demographic characteristics of the study participants (N = 196).

Characteristics	Number (%)
Age group in years	
15 - 19	12 (6.4)
20 - 24	43 (21.9)
25 - 29	51 (25.7)
30 - 34	45 (23)
35 - 39	45 (23)
Occupation	
Government employee	15 (7.8)
Private	33 (16.2)
House Wife	148 (76.0)
Education Level	
Primary	150 (76.5)
Secondary	46 (23.5)
Marital Status	
Single	47 (24.1)
Married/Cohabiting	143(73.3)
Divorced/Widow/Separated	6 (2.6)

4.2 Local health practices and beliefs which increase the risk of contracting neonatal sepsis.

Table 4 shows that 181 (94.3 %) of the study participant did not use traditional medicine and 15 (5.7 %) of the study participants used traditional medicine. The study shows that 186 (96.9 %) of the study participants did not receive any hospital medication for the cord care before discharge from the health facility, others 10 (3.1%) bought medicines from health workers within the wards. With such situation, 139 (72.0%) of the mothers did not apply any medication to the cord immediately after delivery while other participants 11 (5.7%) used traditional medicine and 46 (22.3 %) used modern medicine brought by relatives to the health facility.

After being discharged from the hospital, the study showed majority of the study participants 107 (53.0 %) did not apply anything to the cord and Others were 89 (47.0 %) those who use modern and traditional medicine to the cord.

The study revealed that among participants who utilized traditional medicine 11 (3.7 %) were married women and 4 (2.0 %) were single. However the study revealed that association between the use of traditional medicine and marital status was not statistically significant (P = 0.74).

LIBRARY

Table4: Utilisation of traditional medicines by marital status.

Characteristics	Use of traditional medicine								
Marital Status	**Yes**	**(%)**	**No**	**(%)**	**Total**	**(%)**	χ^2	**df**	**P-value**
Married	11	(3.7)	134	(67.5)	145	(71.2)			
Single	4	(2.0)	41	(23.3)	45	(25.3)	0.6	2	0.74
Divorce/Separated	0	(0)	6	(3.5)	6	(3.5)			
Total	15	(5.7)	181	(94.3)	196	(100)			

The study revealed that 76 (38.8 %) of the study participants visited traditional healers with their newborn babies after being discharged from the hospital and 122 (62.6 %) of the study participants used other types of medicine apart from modern medicine. The study also shows that 15 (5.7 %) of the study participants gave their newborn babies traditional medicine by mouth for different reasons.

Table 5 shows that among participants who visited traditional healers 51 (25.9 %) completed primary school education,18 (9.2 %) completed secondary school education and 7 (3.7 %) had not attended in any school. However the study showed the association between visiting to traditional healers and education level attained was not statistically significant (P-value =0.53).

Table 5: Seeking medical care from traditional healers by level of education

	Visiting traditional healer.								
Education Level	**Yes**	**(%)**	**No**	**(%)**	**Total**	**(%)**	χ^2	**df**	**p-value**
Primary School	51	25.9	89	38.4	140	64.3			
Secondary School	18	9.2	21	17.5	39	26.7	1.26	2	0.53
No School	7	3.7	10	5.3	17	9.0			
Total	76	38.8	120	61.2	196	100			

The study shows that the majority of the participants 190 (96.9 %) take care of their newborn babies themselves, others 3 (1.5%) are taken cared by caretakers while 2 (1.0%) are taken cared by grandmothers and 1 (0.5%) were taken cared by aunties.

4.3 Contributions of cultural behaviours to neonatal sepsis.

Table 6 shows that 97 (49.4%) of the study participants did cultural procedures to their newborn babies within the community for treatment and guidance to their newborn babies.

The study shows 19 (9.7%) of the participants bath their newborn babies before discharge from the hospital and after being discharged from the hospital majority of the participants 94 (63.5 %) use to bath their newborn babies twice, 14 (9.5 %) of the study participants bath their child more than three times and 40 (27 %) of the study participants used to bath their newborn babies only once.

Meanwhile the study shows that 58 (29.6 %) of the study participants complain of water shortage and 159 (81.1 %) of the study participants did not iron the clothes of their newborns babies after washing.

It was revealed that the utilization of cultural procedure to the newborns babies within the community in relation to participants age group were 35.2 % of the study participant were at the age group of 15 - 24, 55.1 % were at the age group of 25 – 34 and 9.7 % were at the age of 35 – 44. However the study shows that the use of cultural procedures in relation to different age group was not statistically significant (P- value = 0.61).

Table 6: Utilization of cultural procedure within the community by age groups.

Characteristics	Culture procedures								
Age - Group	**Yes**	**(%)**	**No**	**(%)**	**Total**	**(%)**	χ^2	**df**	**P-Value**
15 – 24	37	18.9	32	16.3	69	35.2			
25 - 34	52	26.5	56	28.6	108	55.1	0.96	2	0.61
25 - 44	8	4	11	5.7	19	9.7			
TOTAL	97	49.4	99	50.6	196	100			

4.4 Mothers awareness about neonatal sepsis.

In order to examine the awareness of the mothers/caretaker about neonatal sepsis, respondent were firstly asked to answer Yes or No to a list of signs, symptoms and different management of neonatal sepsis.

Respondents were asked if the neonates refusal to suck mothers breast is the major sign of neonatal sepsis, from which the majority of 129 (66.5 %) answered "No" which was the correct answer.

Study participants were also asked if severe diarrhoea is the major sign of neonatal sepsis from which majority of 165 (85.1%) answered "No" which was the correct answer.

In another question participants were asked if high fever is the major sign of neonatal sepsis. In this question majority of 103 (53.1%) answered " Yes" which was the correct answer.

To a question of leaving umbilicus of the newborn without dressing can cause neonatal sepsis. Majority of 103 (53.1%) answered "Yes" which was the correct answer

In the question of leaving a newborn baby unclean body and clothes, are the major risk of getting neonatal sepsis. The majority of 119 (61.3%) answer " No" which was the correct answer.

The majority 171 (87.2) answered tepid sponging is not the immediately measure to take after see a newborn baby with fever which was the correct answer.

Study participants were also asked if giving panadol is the immediate measure to take after see a newborn baby with fever, majority of 147 (75 %) answered "No" which was the correct answer.

Lastly question were immediately measure to take after see a newborn baby with fever, the answer is to take the newborn baby immediately to hospital. Majority of 123 (62.8 %) answered 'Yes" which was the correct answer.

The study showed that 179 (91.3 %) of the study participants delivered at the hospital, 10 (5.1 %) of the study participants delivered at the health centre, 3 (1.5%) of the study participants delivered at the dispensary and 4 (2.0 %) of the study participants delivered at home (See figure 1).

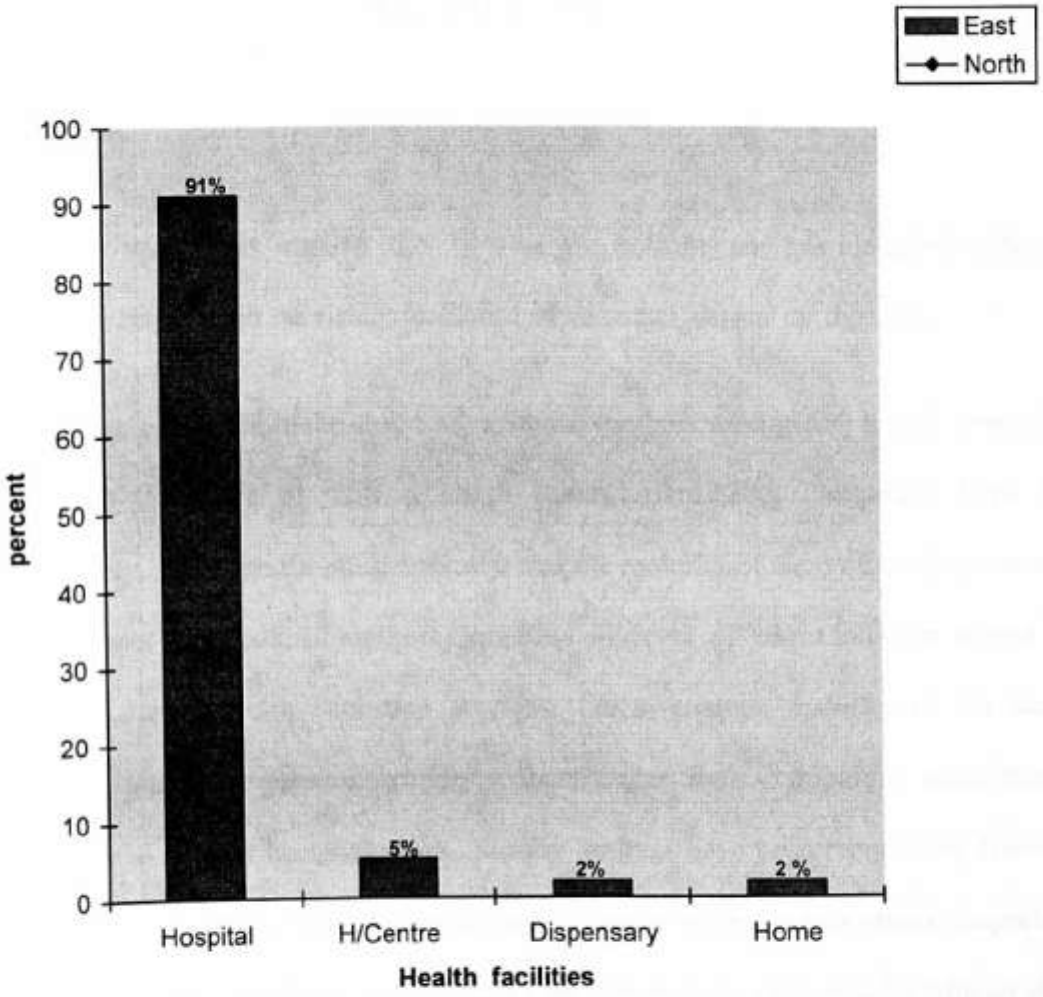


Figure1: Distribution of newborns by place of delivery.

This study discovered that 148 (76.0 %) of the study participants who delivered normally at the hospital were discharged home without any problem and acquire neonatal sepsis at home while 48 (24 %) of the study participants who delivered newborns acquired sepsis before discharge from the hospital.

CHAPTER FIVE

Discussion

The present study was carried out in Dar es Salaam and has identified different factors associated with the rising incidence of neonatal sepsis in the city.

In all hospitals included in the study, all postnatal mothers were given health education on how to take care of their newborn babies before being discharged from the health facility. Although the study indicates that the majority of the mothers had attained primary school education, all mothers regardless of level of education were mixed in one group during health education sessions. On awareness, majority of the study participants answered questions correctly about major signs, symptoms, management and on how to prevent neonatal sepsis. Similar findings have been reported by Hussain et al 1997. He found out that the presence of fever in neonates was among important factors in deciding to seek modern medical care. Other studies reported by Miguel et al 1999 supported the idea that mothers level of perception on illness is associated with their health seeking behaviour which may vary geographically.

However, there are other important factors which have to be examined. For example, De Zoysa et al 1998 have proposed that mothers failure to recognise danger signs on time does not always lead to delay in sending sick baby to hospital because mothers /caregivers do respond to other signs for action.

In the present study, it was noted that the majority of the participants were not provided with any drugs for the cord care on leaving the health facility. Some of them claimed that they did not have money with which to buy the drugs. In such cases we learned that many mothers had good awareness on neonatal sepsis but they did not have the money to buy drugs. In such cases some of the participants did not bother to clean the cord while others shifted to traditional medicine.

During the study we learned that the majority of the participants used traditional medicines during pregnancy and shortly before delivery. They claimed that the drugs protected pregnancy from evil eyes, they were nutritional and could stimulate labour pain. We also learned that these drugs which were given to mothers by their relatives and traditional healers were taken into labour wards in thermos flasks, hot pots etc. Similar findings have been reported by WHO 1998. WHO reported that traditional practices and beliefs associated with the care of the umbilical cord in developing countries included, types of ties, cutting instrument used, length of cord stump, and dressing on the cord stump. For example, using a new cotton thread to tie the umbilical cord as practiced in Nepal, and applying expressed breast milk are considered harmless and beneficial practices (WHO 1998). On the other hand, applying septic substances on the cord, using dirty tools with which to cut the cord, not tying the cord, application of potentially contaminated substances (e.g., ash, oil, butter) on the cord stump and binding the abdomen of the newborn with dirty material are considered harmful practices (Hoque et.al 1996). A study conducted in Bangladesh came up with findings

that warranted giving precautions on the potential harmful effects on oil massage practices on newborn babies (Darmstadt et al, 2002).

In the course of our study we noted that most of the sick newborn babies belonged to housewives. Being close to their mothers most of the time, one would have expected these newborn babies to be better taken care of than if they belonged to working mothers. Paradoxically, the newborn babies who belonged to working mothers were healthier.

This study also showed that most married mothers with their newborns slept with their husbands on the same bed. This does not have direct connection with sepsis. However, if the father does not follow hygienic behaviour can be associated with newborn sepsis. For example if the father does not maintain his body and cloth hygienically it can bring infection to a newborn baby from his daily activity.

We also found out that the majority of the mothers did not wash their newborn babies before discharge from hospital. These mothers claimed the reason was due to cord wetness and immature skin. Similar findings have been reported by Wang'ombe, 1995, which attributed the problem of urban health to several factors including shortage of water, environmental contamination, lack of health services, and poorly coordinated urban planning. According to him the urban poor are most likely to live in non-planned areas where health and social services are not accessible. Shortage of water is a very significant factor in development of health services. The nature of the urban poor

settlement such as overcrowding, poor housing, problems of clean water supply and sanitation can increase the risk of infection to newborn babies (Wang'ombe, 1995).

The majority of the study participants admitted to taking their newborn babies to traditional healers for treatment and guidance. Some of the study participants admitted that in the course of traditional procedures the newborns were either bathed in the medicine or applied topically on their traditional therapeutic marks. Some of the participants admitted that there were cultural procedures done to their newborn babies within the community by grandmothers, aunties and family leaders. As the skin, stomach and other organs of these newborn babies are not mature enough to protect them from traditional medicine and practices, may potentially increase the risk of contracting neonatal sepsis.

Some studies have examined the influence of the opinions of husbands, parents and other relatives on mothers. For example if the mother decides to take the sick newborn baby to a health facility, relative may intervene and suggest that the newborn illness is due to witchcraft and end up in going to traditional healers instead of a modern health facility. In such situations mothers-in-law were mentioned as being influential on the newborn mothers final decision. Most mothers perceived childcare to be their major responsibility. Yet they are likely to face several other difficulties while taking care of their newborns including their regular working and preparing food for family members (Ahmed et al. 2000). As identified in other studies, these mothers also have other regular activities in the families which make it difficult for mothers to seek timely medical care

for their sick newborns. This suggests that the involvement of family members is necessary in creating more supportive environment for mothers to seek medical care for their sick newborn (Coreil et al, 1994).

Another study conducted in Philippines (Libean et al 1976) showed that the local perception of dark spirits significantly influenced mothers decision to use traditional medicine when their infants contract diseases. We found out that some participants also resorted to traditional healers when they were convinced that what was happening to their newborns was the work of evil spirit. This would even have been the case if the baby had contracted sepsis. The mothers preference does also influence their decision, with regard to where to take the sick baby.

Therefore the previous studies and this study identified poor hygienic behaviours, some of the cultural procedures and the use of traditional medicine may be associated with neonatal sepsis.

Conclusion

This research has examined social, cultural and demographic dimensions of neonatal sepsis. The study has shown that apart from other known causes of neonatal sepsis, there are socio-cultural factors that contribute to neonatal sepsis. For example, the use of traditional medicine among study participants and its administration to newborn babies while still in the wards as well as when discharged.

The study also showed that many newborn babies were taken to traditional healers or subjected to traditional procedure for purposes of treatment and guidance. We considered this as a potential risk factor for neonatal sepsis because the stomach and skin of newborns are not mature enough to resist this type of medicines. With the combined perspectives applied, we have concluded that the persistent prevalence of neonatal sepsis in the city of Dar es Salaam can be associated with socio-cultural factors include preference of seeking medical care from traditional healers, local health practices and beliefs.

Recommendations.

1. I would recommend to the Ministry of Health and Social Welfare to utilise the traditional healers to advantage. They are part of the African culture, will take time to go. However while they are still around we should form alliance with them so that when the neonates fall sick, instead of relying on evil forces, the traditional healers should be able to educate and advise mothers to take their babies to the health facilities. Therefore providing continuous training is important to enhance the skills of traditional healers.
2. Further, I would recommend to Ministry of Health and Social Welfare to supply sufficient medicines for the cord, as we saw that the majority of mothers who were discharged from the hospitals without any drug for cord care were more likely to go for alternative method of cord care including traditional healing.

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