Incidence of Tetanus Neonatorum Among Infants in Upland Municipalities of Ilocos Sur

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Abstract

The study was conducted to determine the incidence of tetanus neonatorum among infants born to mothers with tetanus toxoid immunization in upland municipalities of Ilocos Sur.

The respondents of this study were 33 mothers who delivered a baby with tetanus neonatorum in the upland municipalities of Ilocos Sur. A questionnaire supplemented with informal interview with the respondents was used in gathering the data. Frequency counts and percentages were used in the analysis of data. Phi-coefficient was also used to show the relationship of the incidence of tetanus neonatorum and the importance of tetanus toxoid immunization.

The average mother was 31.29 years old, finished elementary education, was a housekeeper, and belonged to the catholic religion.

Most of the respondents did not subject themselves to prenatal check up and did not receive the recommended dose of tetanus toxoid immunization which could protect their child from acquiring tetanus neonatorum. They preferred the hilot as their birth attendant and delivered their babies in their own home for economics reasons. They observed varied practices in caring the umbilical cord of their babies. Some of them used 70% alcohol and betadine in cleaning the umbilical stump. But some used powder and even ashes of coconut shell and burned leaves which are very dangerous and are predisposing factors to the infection of the umbilical cord of the baby. A moderate positive relationship between the incidence of tetanus neonaturom and the importance of tetanus toxoid immunization was shown.

Introduction

Background of the Study

In the Philippines where diseases are rampant and the rate of communicability is high, the Department of Health (DOH) initiated programs on Expanded Program of Immunization which aimed to decrease the incidence of different diseases especially 10

leading causes of mortality and morbidity among children including tetanus. Despite all the concerted efforts of health personnel to eradicate tetanus neonatorum especially in the far flung areas of the province of Ilocos Sur, tetanus neonatorum is still one of the leading causes of morbidity and mortality among infants.

Cognizant of this situation, the health personnel, particularly the nurses, midwives, volunteer health workers, and even hilots, play a vital role in carrying out the activities under the expanded program of immunization..

It is for this reason that awareness on the importance of tetanus immunization be created among expectant mothers and that they be encouraged to submit themselves for immunization.

Objectives of the **Study**

This study was conducted to determine the incidence of tetanus neonatorum in upland municipalities of Ilocos Sur.

Specifically, it aimed to:

1. Present the socio-demographic profile of mothers who gave birth to babies infected with tetanus neonatorum.
2. Identify the different prenatal practices of these mothers especially prenatal check up and tetanus toxoid immunization status.
3. Identify the natal practices of these mothers, their preferred birth attendants, place of delivery, and reasons for choosing their preferred birth attendants.
4. Identify the postnatal practices of these mothers especially in caring their babies' umbilical cord.
5. Determine the incidence of tetanus neonatorum among infants born to mothers with tetanus toxoid immunization.

Significance of the Study

The newborn child is expected to benefit from this study. The results/findings of the study will serve as a basis for improving the health care delivery system of the Department of Health especially in the area of Maternal Health Care Services and Expanded Program of Immunization.

It will also create awareness among expectant mothers on the importance of submitting themselves to complete dose of tetanus toxoid immunization.

The study can also assist the government in the policy making functions and concerns

for volunteer health workers especially the hilots to upgrade and teach them to handle delivery safely for the welfare of the newborn child and the mother.

Review of Related Literature

Neonatal tetanus remains a global problem especially in countries like the Philippines, where unclean delivery and postpartum practices continue to be practiced widely.. The national plan of action for Neonatal Tetanus Elimination was approved and has been implemented since 1993. The government through the DOH has been committed to attain the goal of Neonatal Tetanus Elimination by 1995, which means maintaining the number of neonatal tetanus cases nationwide to less than 1% per 1,000 live births.

Neonatal tetanus is completely preventable by immunization and clean delivery and postpartum practices. Each neonatal tetanus case represents a double failure in the health care delivery system: mothers were neither immunized nor had access to clean delivery and postpartum services.

Neonatorum tetanus is' a generalized form of tetanus. The baby is usually born nonnal with no apparent illness and first symptom usually appears after 48 hours of life and is often described as failure to suck. Death is the usual outcome and often secondary to aspiration pneumonia. Neonatal tetanus mortality in hospitalized cases in the Philippines is 60-70%. The shorter the incubation period, the higher the risk of dying.

Why investigate all neonatal deaths in the community? Majority of deliveries in the Philippines (60-70%) occur in the home, thus, most cases of neonatal deaths are unattended and undetected. There is a great possibility that when an apparently normal newborn baby dies, it is most probably due to tetanus. About 30-35% of all neonatal death are due to tetanus.

According to World Health Organization, the following are the causes of neonatal tetanus and the remedies to prevent them:

I. Low immunization coverage - Intensity health education campaign to advertise tetanus toxoid immunization and undertake total tetanus toxoid immunization to all women of childbearing age in the community.
2. Unclean delivery - Train or educate the birth attendants or hilots often assisting deliveries at home and provide them with the necessary supplies.
3. Unclean postpartum practices - Educate mother and other child carers in the home.

Tetanus neonatorum is a serious health problem in many developing countries where maternity care services are limited and immunization against tetanus is inadequate. The

ality rates due to tetanus neonatorum range from 10-60 per 1,000 live births in the rural Most newborn infants with tetanus have been delivered outside of a hospital to unized mothers delivered by a traditional birth attendant.

The disease usually occurs through the infection of the umbilicus with tetanus spores ing delivery by cutting the cord with an unclean instrument or after delivery by dressing umbilical stump with substances heavily contaminated with tetanus spores.

.. Tetanus neonatorum is typified by a newborn infant who sucks well and cries normally the first few days after birth and subsequently develops progressive difficulty and then ability to feed because of trismus or generalized stiffness with spasms and convulsions and isthotonus. The average incubation period is about six days from a range of 3-28 days. ,erall neonatal tetanus case fatality rates are very high; among cases with short incubation riods, these exceed 80%.

Prevention of tetanus neonatorum can be achieved by two approaches: by improving aternity care with emphasis on increasing the proportion of deliveries attended by trained tendants and by increasing the coverage of immunization with tetanus toxoid among women ·ith childbearing age, especially pregnant women.

Important control measures include the following: 1) licensing of midwives with provision of professional supervision and education on methods, equipments, and techniques asepsis of childbirth and 2) education of mothers, relatives, and attendants in the practice strict asepsis of the umbilical stump of newborn infants. The latter is especially important many less developed areas where ashes, cow dung poultices, or other contaminated substances are traditionally applied to the umbilicus.

Unimmunized pregnant women in circumstances where risk of neonatal tetanus exists should receive at least 2 doses of tetanus toxoid at least 4 weeks apart, the second of which should be taken at least 2 weeks before delivery. A third dose of toxoid should be given during the next pregnancy. Inadequately immunized pregnant women should complete the primary series: those previously immunized should receive a booster dose 10 years after the last immunization. (Control of Communicable Diseases Part II, p. 389).

Methodology

This study focused on 33 mothers who delivered a baby with tetanus neonatorum in 14 upland municipalities in the province of Ilocos Sur, namely: Alilem, Banayoyo, Burgos, Cervantes, Del Pilar, Galimuyod, Lidlidda, Nagbukel, Quirino, Salcedo, San Emilio, Sigay, Sugpon and Suyo.

The list of cases was taken in each municipality through the Rural Health Unit (RHU). Then, a questionnaire checklist supplemented with informal interview with the

mother was used. Frequencies and percentages were used in analyzing the data gathered.

Phi coefficient was also used to show the relationship of the incidence of tetanus neonatorum and the importance of tetanus toxoid immunization.

Discussion of Results

Socio-Demographic Profile

Table 1 shows the distribution of respondents according to their socio-demographic characteristics.

Table 1. Distribution of respondents according to their socio-demographic characteristics.

SOCIO-DEMOGRAPHIC CHARACTERISTIC	NO.	%
Age (years)		
45 - 49	3	9.10
40–44	2	6.06
35– 39	6	18.18
30– 34	5	15.15
25–29	7	21.21
20–24	10	30.30
Average age = 31.29		
Educational attainment		
High school graduate	1	3.03
High school level	1	3.03
Elementary graduate	2	6.06
Elementary level	29	87.88
Occupation		
Housekeeper	32	96.97
Business	1	3.03
Religion		
Catholic	32	96.97
Seventh Day Adventist	1	3.03

Age. The age of the respondents ranged from 20-49 years. It is clearly shown that 30.30% of the mothers who gave birth to a child infected with tetanus neonatorum were 20-24 years old and the average mother was 31.29 years old.

This implies that the age of the mother is one factor in the incidence of tetanus neonaturum. Since they are still young and it's their first time to get pregnant they Jack scientific knowledge on the preventive aspect of tetanus in their child and the importance of having complete tetanus toxoid immunization.

Educational attainment. The great majority (87.88%) of the mother-respondents have attained elementary level only. Only a few either graduated from elementary or high school or reached high school level. This implies that the educational attainment of the mother plays a very important factor in the causation of tetanus. Because of their low level of education the mothers lack the necessary knowledge and skills in the prevention of diseases which can possibly be learned at higher level of education.

Occupation. Generally, almost all of the mothers (96.9%) were housekeepers. Only one was in business. This implies that because their nature of work was confined to the daily routine in the house they neglected the important regular prenatal check up.

Religion. Table 1 also shows that 96.9% of the mothers were Catholics. Only one belonged to Seventh Day Adventist.

Prenatal Practices

Table 2 shows the distribution of respondents in tenns of prenatal practices.

Prenatal practices. Only 39.40% of the mothers subjected themselves to prenatal check up while 60.60% did not submit themselves to prenatal check up.

Prenatal check up is very important in the prevention of diseases, since the health of the mother and the child is safeguarded by the health workers and specific prevention like tetanus toxoid immunization is given to the expectant mother. However, the data show that majority of the mothers had an unfavorable attitude toward prenatal check up.

Place of prenatal check up. All the mothers who went for prenatal check up did so in Rural Health Units (RHU). This implies that these mothers realized the importance of the RHU in rendering health services. Moreover, the RHU is closer to their homes than the district hospitals.

Frequency of prenatal. The mothers who subjected themselves to prenatal check up did it once a month as expected of pregnant women. This implies that because majority of the mothers did not have their regular check up, the introduction of tetanus toxoid immunization was not properly monitored.

Table 2. Distribution of respondents in terms of prenatal practices.

PRE-NATAL PRACTICE	NO.	%
With prenatal check up	13	39.40
No prenatal check up	20	60.60
l'lace of prenatal		
RHU	13	39.40
None	20	60.60
Frequency of prenatal		
Once a month	13	39.40
None	20	60.60
Ro. of tetanus toxoid received		
1	5	15.15
2	6	18.18
3	2	6.07
None	20	60.60
Time when tetanus toxoid immunization was received		
Before delivery	13	39.40
After delivery	0	0
None at all	20	60.60

Number of tetanus toxoid received. The number of tetanus toxoid received by the mothers who had their prenatal check up ranged from 1 to 3 times only; 60.60% did not receive any immunization at all.

It implies that even if some mothers received some tetanus toxoid immunization the complete dose was not given to protect completely the unborn child from contacting tetanus neonatorum. Those who did not receive any immunization predisposed their children to tetanus neonatorum.

Time when tetanus toxoid immunization was received. All the mothers who had prenatal check up (39.40%) received their tetanus toxoid immunization before delivery; no one received any immunization after delivery; and 60.60% did not receive any immunization at all.

This implies that although tetanus immunization is very important to be given during pregnancy to assure the protection of the child from tetanus neonatorum, most of the mothers did not know the benefits of this immunization, thus they did not avail of it.

Natal Practices

The respondent mothers' natal practices were also taken into account. These included their preferred birth attendant, reasons for their preference of birth attendants, place of delivery, and type of delivery (Table 3).

Table 3. Distribution of respondents in terms of natal practices.

NATAL PRACTICE	NO.	%
Preferred birth attendants		
Hilot	32	*96.97*
Midwife	1	3.03
Mothers' perceived reasons for their preference of **birth attendant**		
Economic reason	**30**	90.91
Used to the person	2	6.06
Confident with the birth attendant	1	3.03
Place of Delivery		
Home	32	*96.97*
Hosoital	1	3.03
Type of Delivery		
Normal	33	**100.00**

Preferred birth attendant. The hilot was preferred by 96.97% of these mothers; only one respondent preferred the midwife.

This finding implies that the hilot who attended the deliveries of these mothers is one major factor in the causation of tetanus neonatorum since the hilot lacks the necessary knowledge and skills in the prevention of the occurrence of tetanus neonatorum.

Mothers' perceived reasons for their preference of birth attendant. The majority of the mothers (90.91%) preferred the hilot as birth attendant for economic reasons; 6.06% said that they were used to her; and one respondent claimed that she was confident in the midwife.

It implies that delivery in a hospital or any health institution needed a big amount even if it were normal delivery, thus, due to economic reasons these mothers subjected themselves to their preferred birth attendant, the hilot.

Place of delivery. Almost all the respondent-mothers (96.97%) delivered their babies at home. Only one mother delivered in a hospital. The nature of the environment where the delivery takes place and the lack of the needed equipment predispose the unborn child to infection.

Type of delivery. All the respondent-mothers had normal delivery. It implies that because of normal delivery they chose to deliver in their own home and be handled by a hilot.

Postnatal Practices

Table 4 shows the distribution of respondents in terms of postnatal practices.

Table 4. Distribution of respondents in terms of postnatal practices.

POSTNATAL PRACTICE	NO.	%
Cord dressing		
Use of string	20	60.60
Use of clip	13	39.40
Instruments used in cutting the cord		
Scissor	33	100.00
Use of binder		
With binder	30	90.91
Without binder	3	9.09
Cord care practices		
Used betadine	2	6.06
Used 70% alcohol	6	18.18
Maintained cord binder after the cord was cut off	7	21.21
Changed dressing every time the umbilicus was cleaned	2	6.06
Washed hands before and after cleaning the cord	5	3.03
Kept umbilical cord open	2	6.06
Used powder	5	15.15
Used coconut shell ashes	5	15.15
Used ashes of burned leaves	31	9.10

Cord dressing. In dressing of the cord of their babies, 60.60% of the mothers used string and 39.40% used clip. This implies that string is commonly used in dressing the cord of a baby but it should be properly disinfected or sterilized since unsterilized string will predispose the baby to the occurrence of tetanus neonatorum.

Instruments used in cutting the cord. A pair of scissors was used in cutting the cord as declared by all the respondent-mothers. Although the pair of scissors is commonly used in cutting the baby's cord, it should be properly sterilized before using it, for using unsterilized instruments in cutting the cord predisposes the baby to acquire tetanus neonatorum.

Use of binder. Most of the mothers (90.91%) used binder in the umbilicus of their babies but 9.09% did not use any binder. Use of binder supports the umbilicus and prevents it from protruding. This was a common practice before but it should be changed regularly and kept clean.

Cord care practices. The cord care practices of the mothers were varied, as follows: maintained cord binder after the cord was cut off (21.21%); used 70% alcohol (18.18%); used betadine (6.06%); changed dressing everytime the umbilicus was cleaned (6.06%); washed hands before and after cleaning the cord (3.03%); and kept the umbilical cord open (6.06%). Others used dangerous materials such as powder or coconut shell ashes (15.15% each) and ashes of burned leaves (9.10%). This finding implies that some of the mothers were not aware of the danger in using these ashes on the umbilical cord and that these may predispose the babies to tetanus neonatorum.

Relationship Between Incidence of Tetanus Neonatorum and Importance of Tetanus Toxoid Immunization

Table 5 presents the contingency table showing the relationship between the incidence of tetanus neonatorum and the importance of tetanus toxoid immunization.

Table 5. Contingency table showing the relationship between the incidence of tetanus neonatorum and the importance of tetanus toxoid immunization.

	WITH PRENATAL CHECK UP	WITHOUT PRENATAL CHECK UP	TOTAL
With immunization	13	0	13
Without immunization	0	20	20

$$\theta = \frac{ad - be}{(a+b)(c+d)(a+c)(b+d)}$$

$$\theta = \frac{260 - 0}{(13)(40)(33)(20)}$$

260 260

343,200 585.83
.44

A moderate positive relationship was shown using the 0 coefficient which means that complete dose of tetanus toxoid immunization will prevent the incidence of tetanus neonatorum.

Summary of Findings

This portion summarizes the study and presents the salient findings.

This study investigated the incidence of tetanus neonatorum among 33 mothers in 14 upland municipalities of Ilocos Sur from 1995 to 1999. Specifically, it attempted to present the socio-demographic profile of the respondents, identify their prenatal, natal, and postnatal practices, and detennine the incidence of tetanus neonatorum among infants born to mothers with tetanus toxoid immunization.

The descriptive method was employed in this study. It utilized a questionnaire checklist supplemented with informal interview with these mother. Frequency counts and percentages were used in analyzing the data. Phi coefficient was also used to show the relationship between the incidence of tetanus neonatorum and the importance of tetanus toxoid immunization.

Findings

Socio-Demographic Characteristics of Respondents

1. The average mother-respondent was 31.29 years old, finished elementary level, were housekeepers, and belonged to the catholic religion.

2. Most of the respondents (60.60%) did not submit themselves to prenatal check up. Some (39.40%) underwent prenatal checkup in the Rural Health Unit (RHU) once a month and received tetanus toxoid immunization before delivery of their baby.

3. Majority of the mothers (96.97%) preferred the hilot to assist them in the normal delivery of their babies which was done in their homes. They preferred the hilot for economic reasons.

4. Majority of the mother-respondents (60.60%) used string for cord dressing, a pair of scissors in cutting the cord, and a binder till the umbilical cord was off. Some used Betadine and 70% alcohol in cleaning the umbilical cord of their children while others used powder, coconut shell ashes, and ashes of burned leaves.

5. There was a moderate positive relationship between incidence of tetanus neonatorum and the importance of tetanus toxoid immunization.

Conclusions

Based on the aforementioned findings of the study, the following conclusions were drawn:

I. Majority of the mother-respondents were not aware of the importance of tetanus toxoid immunization because they were young and had attained low educational level, thus, they did not undergo prenatal check up and had no tetanus toxoid immunization.

2. In the delivery of the babies, they relied so much on the hilot, who may not have the proper training to handle safe delivery.

3. The mothers still adhered to the traditional unsafe cord care practices.

4. The incidence of tetanus neonatorum could be prevented if the mother received **a** complete dose of tetanus toxoid immunization and practiced proper care of the baby's umbilical cord.

Recommendations

The following recommendations are hereby forwarded based on the foregoing conclusions.

I. Information education campaign on the importance of completing the tetanus toxoid immunization should be conducted.

2. Mothers especially the primi ones, should undergo seminars on immunization and caring for the newborn, specifically on the umbilical cord.

3. Follow-up cases should be done especially among those who are in need.

4. Hilots in the upland municipalities should be trained to handle delivery safely for the mother and the child in these localities.

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