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TETANUS TOXOID IMMUNIZATION COVERAGE AMONG MOTHERS OF CHILDREN BELOW ONE YEAR OF AGE IN DIFFICULT-TO-REACH AREA OF LAGOS METROPOLIS

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A retrospective survey of tetanus toxoid immunization coverage was conducted among 196 mothers of children less than one year of age in a difficult-to-reach area of Lagos metropolis. This was to asoertain the status of coverage among the women presumed to have been immunized with minimum of two doses of tetanus toxoid during pregnancy, estimate drop out rates, investigate reasons for failure to be immunized and determine missed opportunities to get immunized. An interview was conducted by administering questionnaires using WHO cluster form for tetanus toxoid immunization. Recall history and immunization card review were taken as response. The results showed that with card/history criterion, 109 (55.6%) women received first dose of tetanus toxoid (TT), 80 (40.8%) received second dose and 22 (11.2%) received third dose while 87 (44.4%) were not immunized. Using the card criterion that only established valid immunization, 20 (10.2%) women received first dose and 14 (7.2%) received the second dose. With the card criterion analysis, 14 (7.2%) mothers were protected against tetanus and only 4 (2%) babies born of these mothers were protected against tetanus. A decline was observed in compliance with the regimen of vaccination. Thirty three (16.8%) of women studied missed the opportunity of getting vaccinated and 87 (79.8%) of 109 who started vaccination dropped out. Reasons advanced for failure to be immunized included lack of information accounting for 65.85%, lack of motivation was 20.4% and 13.8% as environmental factors. Poverty and lack of health facilities also contributed to the low level of immunization coverage. For TT immunization to improve in the area studied, factors impeding immunization must be addressed.

Keywords: Tetanus, immunization, coverage

INTRODUCTION

Immunization of pregnant women with tetanus vaccine is one major means of controlling neonatal tetanus (NT). Available reports of different studies indicate that the disease is still persisting. A community based study conducted in Ilorin local government of Kwara State in Nigeria showed a neonatal mortality of 11.9 per thousand live births (1).

Owa and Makinde (2) studied 52 cases of NT in Osun State of Nigeria and observed that 35 of the mothers did not receive tetanus toxoid (TT) immunization and 4 of the 52 of the babies with NT were from immunized mothers. Grange (3) also observed that in the 419 cases of NT studied in Lagos, Nigeria, history of maternal TT immunization was lacking for most mothers. A community based study in Rivers State of Nigeria on TT immunization status of parturient women showed a complete, partial or no coverage status of 41.2%, 17.0% and 41.8% respectively of women surveyed (4).

These records indicated low coverage of TT immunization among women of reproductive age, especially pregnant women. This low coverage was noted to be common in rural areas where the awareness of TT immunization is very low (4). Also, to date most of the women delivering at the facilities of traditional birth attendants (TBA) have no record of tetanus toxoid immunization (personal communication with TBAs).

It is this observation that informed our team to conduct a survey of TT immunization coverage in a coastal area of Lagos metropolis that is difficult to reach, to determine effect of terrain on immunization coverage. The objectives of the study are to determine the number of mothers of children less than one year of age who received a minimum of 2 doses of TT immunization during pregnancy; estimate

the drop out rates in the course of receiving the antigens, investigate reasons for not receiving TT immunization and determine the percentage of missed opportunities.

MATERIALS AND METHOD

Study location

The study location, Pedro village, is a coastal suburb of Lagos metropolis. A major part of the village is water terrain that is accessible only by canoe and the remaining part is swampy land area that is accessible only by foot in summer. The people of the village are mostly fishermen. There is neither health facility nor any other infrastructural facilities such as piped borne water or electricity in the village. Due to the absence of health facility, a church yard is used as immunization centre.

Sampling technique/Study population

The WHO cluster sampling technique (5) was used. A cluster in this case is a randomly selected group of housing units containing 7 mothers of children below one year of age to evaluate the TT immunization coverage. The survey covered 30 clusters. The inclusion criterion was mothers of children below one year of age living in Pedro village. Only 196 out of the targeted 210 mothers met the criterion and were recruited into the study. Each mother gave an informed consent at the beginning of the study.

Source of information on immunization status

The mothers were interviewed using the WHO cluster form with closed end questionnaires for tetanus toxoid immunization. The questionnaire was pre-tested and contained information on immunization status, dates of receiving TT antigen, number of doses received and sources of vaccine. Recall history and immunization card review were used as tools of assessment. The mothers were also asked to give reasons for failing to be immunized with TT or for not completing the immunization. Missed opportunity was defined as inability to receive vaccination when vaccine is available, such as being ill at the time of vaccination or refusal to come to vaccination centre when mass immunization is going on.

Data analysis

Data were analyzed using COSAS and EPI INFO version 6.04 (Centre for Disease Control and Prevention, Atlanta, GA)

RESULTS

Immunization

The WHO recommendation stipulates that a woman of reproductive age is required to receive 5 doses of tetanus toxoid in her life time (6). In this study, using the card/history criterion, 87 (44.4%) of women were not immunized (Table 1).

Table 1: Tetanus toxoid immunization coverage

TT immunization status	No of women (n = 196)	%
TT dose 1	109	55.6
TT dose 2	80	40.8
TT dose 3	22	11.2
TT dose 4	10	5.1
TT dose 5	7	3.6
No vaccine given	87	44.4
TT missed opportunity	33	16.8
Drop out TT1-TT2	29 of 109	26.6
Drop out TT1-TT3	87 of 109	79.8

No studied = 196, Information by card + history

Using only card criterion, 20 (10.2%) women received one dose of TT and 14 (7.1%) received two doses (Table 2).

Drop out rates

The record of response and compliance of the women to TT immunization showed a drop out rate of 26.6% when estimating the population that received TT1 and TT2. This drop out rate became 79.8% when the percentage of women who received TT1 to TT3 doses was analyzed (Table 1).

Missed opportunities

A total of 33 (16.8%) of the women studied missed the opportunity of receiving TT immunization (Table 1). This was based on the information from recall history (7) and immunization card review.

Status of protection from TT immunization

The analysis of TT immunization showed that 14 (7.1%) of women studied were protected against tetanus. This analysis was based on valid immunization as shown in the record card (Table 2). Babies born during the period of protection of the mothers were assumed to be protected against tetanus. If any mother received immunization 1-2 weeks before delivery, the baby is regarded as being unprotected. By this analysis, only 4 (2%) were protected against tetanus in the study (Table 2).

Table 2: Tetanus toxoid immunization coverage by card only

TT immunization status	No of women (n = 196)	%
TT dose 1	20	10.2
TT dose 2	14	7.1
TT dose 3	0	0
TT dose 4	0	0
TT dose 5	0	0
Women protected from tetanus	14	7.1
Babies protected from tetanus	4	2
No vaccine given	176	89.8

No studied = 196

Reasons for immunization failure

The reasons adduced for failure to receive immunization included lack of information which accounted for 65.8%, lack of motivation 20.4% and 13.78% for other reasons peculiar to the community. These included non commitment of the health workers, which is attributed to fear of drowning in the river, and refusal of mothers living on water to come for immunization on the land area of the village. Also, the struggle to fend for the families engaged the time of the mothers who did not remember to get vaccinated.

DISCUSSION

Immunization of women of reproductive age especially pregnant women is very important in preventing neonatal tetanus. For this to be effective, the coverage must be large and compliance with vaccine regimen must be encouraged. A contrast to expectation was observed in the results of this study. A low TT immunization coverage was observed with as many as 44.4% of mothers not immunized when the history/card criterion was used. This is high and shows that there is poor knowledge of immunization and its benefits among women in this area. The pattern of compliance among those who were vaccinated also showed that there was high rate of dropout. These observations no doubt indicate that newborns cannot be protected with this pattern of immunization (1, 8, 9).

Realizing that immunization card review is more valid than recall history, only card documentation of TT immunization was analyzed and it revealed that 14 (7.7%) of the 196 mothers were confirmed to have received 2 doses of TT. This analysis also showed that only 4 of the 196 babies delivered by the mothers studied were protected against tetanus. This value is very low indicating that it will take some time before occurrence of neonatal tetanus can be reduced in this area.

The dropout rate of 79.8% observed indicates poor knowledge of the mothers about immunization. This must have been responsible for the poor attitude of the mothers to TT immunization generally. This has been reported to be one of the main factors associated with high mortality of NT in Northern Nigeria (10). As many as 33 (16.8%) mothers missed the opportunity of getting vaccinated with TT. Long distance to

vaccination centres, poverty of the people with no means of transportation and the poor terrain of the community must have contributed to these missed opportunities (4, 9). In this study, the location of the vaccination centre is on the land part of the village, a site that was rejected by those living on water. Similar observation was made in a study conducted in Bangladesh (11). Compounding the situation was the absence of health facility in the community which made those on water to feel rejected.

Reasons adduced for failure to be immunized by the mothers were lack of information and motivation. The mothers were largely unaware of TT immunization and its regimen. This made many to be partially immunized. The attitude of the health care providers was not encouraging to mothers, as some of them alleged harassment and monetary extortion for syringes used for injection of vaccines, by some of the workers. These were lack of motivations for the mothers to get immunized. The health care workers were equally not well motivated by government and this affected their attitude to work in the village.

CONCLUSION

Poor awareness of TT immunization due to lack of maternal health education coupled with absence of health facilities affected immunization coverage in area studied. Also affecting the coverage was poor commitment of health workers assigned to the village.

Therefore, for TT immunization coverage to increase among women of reproductive age in this village, health care facilities and other infrastructures must be put in place (12). Maternal health education must be established to create awareness of the importance and benefits of TT immunization. This can be provided through counseling and social mobilization. Dhadwal and his groups (13) found this approach to be very useful. Reducing missed opportunities to promote immunization as well as targeted home visitation of women in need of additional immunization could be steps to further improve coverage (10). These measures will undoubtedly reduce the incidence and the mortality and morbidity associated with neonatal tetanus in the area.

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