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NEONATA TETANUS IN LAGOS METROPOLIS

A. O. GRANGE

SUMMARY

Grange A. O. Neonatal Tetanus in Lagos Metropolis. *Nigerian Journal of Paediatrics* **1991: 18(1): 12-22.** Neonatal Tetanus (NNT) is one of the six childhood diseases that have been targetted for eradication or control through the implementation of the Ex-'panded Programme on Immunisation (EPI) which in Nigeria was launched in 1984. A review of hospital records revealed that the number of NNT cases admitted to five health institutions. was 342 in 1984, increasing to 353 in 1985 359 in 1986 and becoming slightly reduced to 332 in 1987 and 319 in 1988

Records of 419 cases at the Lagos University Teaching Hospital over the five year period gave a male to female ratio of 1.3:1 for NNT admissions and 1.5:1 for NNT deaths. The admission rate for NNT was 15% of all neonatal admissions whilst the case fatality rate was 42%. Only eight mothers were reported to have received the first dose of tetanus toxoid during pregnancy. It is concluded that EPI has not had any appreciable impact on the prevalence of Neonatal Tetanus in Lagos Metropolis.

INTRODUCTION

In the developing world, neonatal tetanus is still a major cause of death among newborn infants, The true incidence ofthe disease is unknown owing to lack of registration of births and deaths in many communities.

In a study conducted in a local Government area in Lagos over the period 1983 – 87 the Incidence of neonatal tetanus (NNT) ranged from 4 to 8 per 1000 live births' An earlier study in Benue-Plateau State in 1975 revealed that 230 cases of neonatal tetanus were admitted into eleven hospitals over a two year period.[2] In other reviews from Nigerian health institutions, neonatal tetanus accounted for 9.8%[3], 9.2%[4], 10.2%[5] and 7.3%[6] of hospital neonatal admissions respectively. Although the current EPI programme in Nigeria has largely succeeded in decreasing the prevalence of measles.[7] and poliomyelitis,[8] anecdoctal reports from various hospitals in Nigeria suggest that neonatal tetanus cases are still being admitted in large numbers. The purpose of this study therefore is first to determine the trend in admission of neonatal tetanus cases over the past five years. Secondly, this paper examines the admission characteristics and case fatality rates among cases admitted to the neonatal ward of the Lagos University Teaching Hospital.

MATERIALS AND METHODS

A restrospective study of the cases of neonatal

University of Lagos, Lagos
College of Medicine
Senior Lecturer/Consultant Paediatrician

tetanus in five hospitals on the Lagos Island and Mainland was carried out. The five year period covered was 1984–1988.

The admission and discharge registers and ward report books were examined. Information extracted included the diagnosis, date of admission, sex and age of baby. At the Lagos University Teaching Hospital additional information was obtained with regards to date of admission, date of discharge or death, weight on admission, gestational age and immunisation history in a limited number of case records The total number of neonatal admissions and deaths was also extracted from the registers of the hospital.

RESULTS

Table 1 & Fig 1 show admission rates of neonatal tetanus by year from 1984 to 1988. This ranged from 342 in 1984, 353 in 1985, 359 in 1986, 332 in 1987, and 319 in 1988.

A review of 419 cases with complete records at the Lagos University Teaching Hospital revealed a neonatal tetanus admission rate of 15% of all neonatal admissions between 1984 and 1988 (Table 11). The male to female ratio was 1.3:1. The pattern of admission on monthly basis is shown in (fig 2). The highest rate of admission was encountered in May (10.5%) and November (11.2%) whilst the lowest rate was in July (6.0%).

The total number of deaths due to NNT was 165 which gave a case fatality of 42% (Table 11). The NNT deaths accounted for 34% of all neonatal deaths. The male to female NNT deaths ratio was 1.5:1.

The mean (±S.D.) age of the neonatal tetanus cases on admission was 10.4 ± 4.8 days with 80% of the cases presenting between the ages of 5 and 14 days (Table 111 & fig 3). The mean age (±S.D.) of the babies with NNT at times of death was 15.7 ± 9.8 days. 76.4% of the deaths occured between the age range of 5 and 14 days whilst no deaths were recorded for those aged less than five days (fig 4). The mean (±S.D.) duration of stay on the ward perior to death was 5.9 ± 5.1 days, whilst the mean (±S.D.) duration of hospital stay of survivors was 22.7 ± 13.5 days (Table IV).

The mean (±S.D.) body weight of the cases on admission was 2739.6 ± 510.5 grms. 66% of the babies weighed less than 2500 grms whilst 7.8% weighed above 3500 grms (fig 5). 5.1% were identi-

TABLE 1

NEONATAL TETANUS IN LAGOS METROPOLIS 1984 – 1988

YEAR	NO. OF CASES
1984	342
1985	353
1986	359
1987	332
1988	319

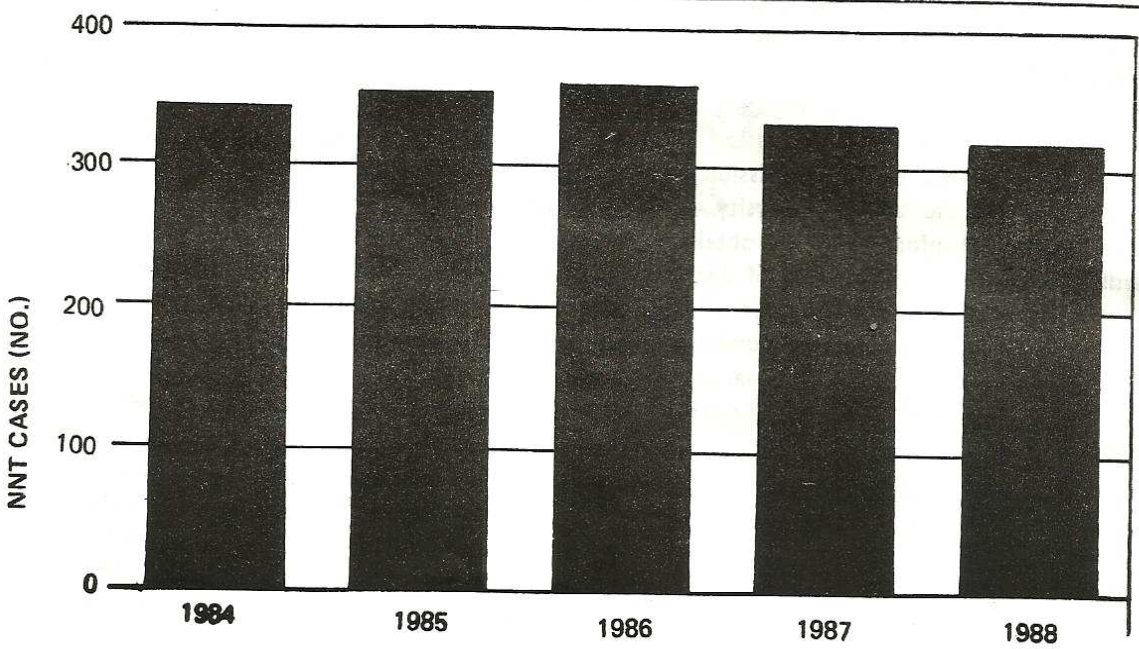

FIG. I PREVALENCE OF NNT BY YEAR OF ADMISSION

TABLE II

ADMISSION AND MORTALITY RATES AT THE LUTH 1984 – 1988.

NO OF NEONATAL ADMISSIONS	2613
NO OF NNT ADMISSIONS	398
NNT ADMISSIONS % OF TOTAL NEONATAL ADMISSIONS	15%
NNT ADMISSION MALE: FEMALE RATIO	1.3:1
NEONATAL DEATHS	490
NNT DEATHS	165
NNT DEATHS % OF NEONATAL DEATHS	34%
CASE FATALITY RATE	42%
MALE: FEMALE NNT DEATHS RATIO	1.5:1

NNT= NEONATAL TETANUS

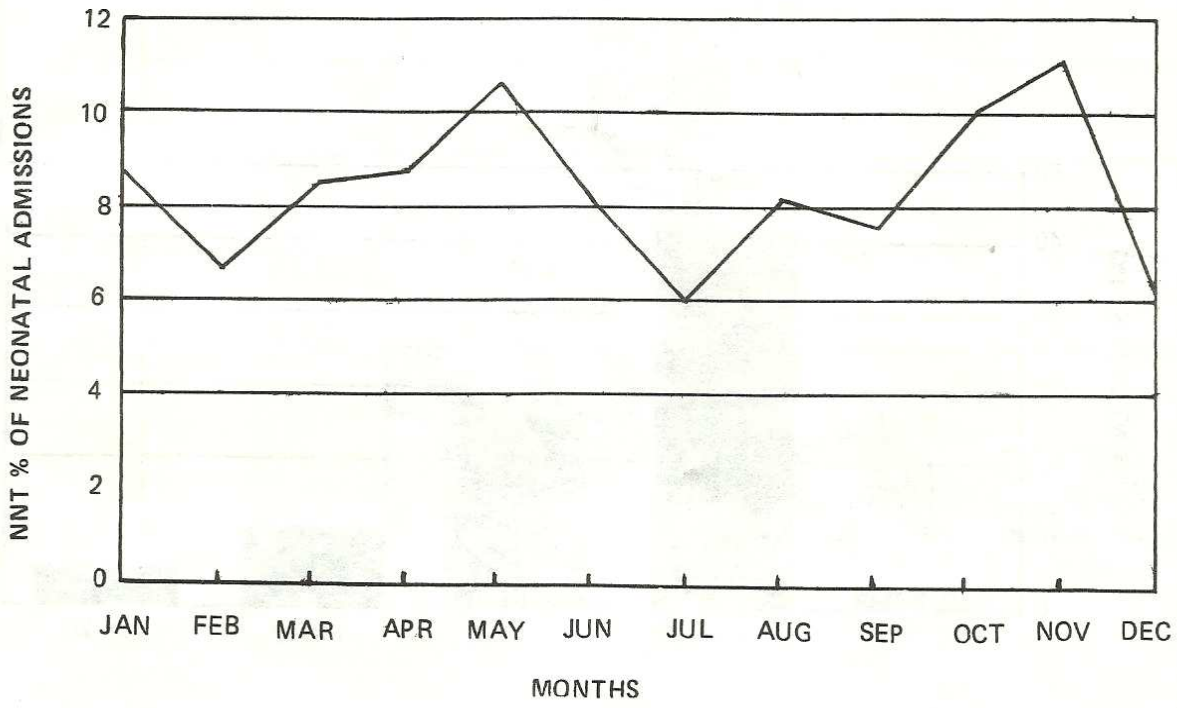

FIG.2 MONTHLY PREVALENCE OF NEONATAL TETANUS

TABLE 111

NEONATAL TETANUS.
MEAN + S D AGE ON ADMISSION AND AT DEATH AND MEAN + S D BOYD WEIGHT ON ADMISSION

MEAN AGE ± S.D. ON ADMISSION (DAYS)	10.4 ± 4.8
MEAN AGE ± S D (DAYS) AT DEATHS	15.7 ± 9.8
MEAN ± S D BODY WEIGHT ON ADMISSION (GMS)	2739.6 ± 510.5

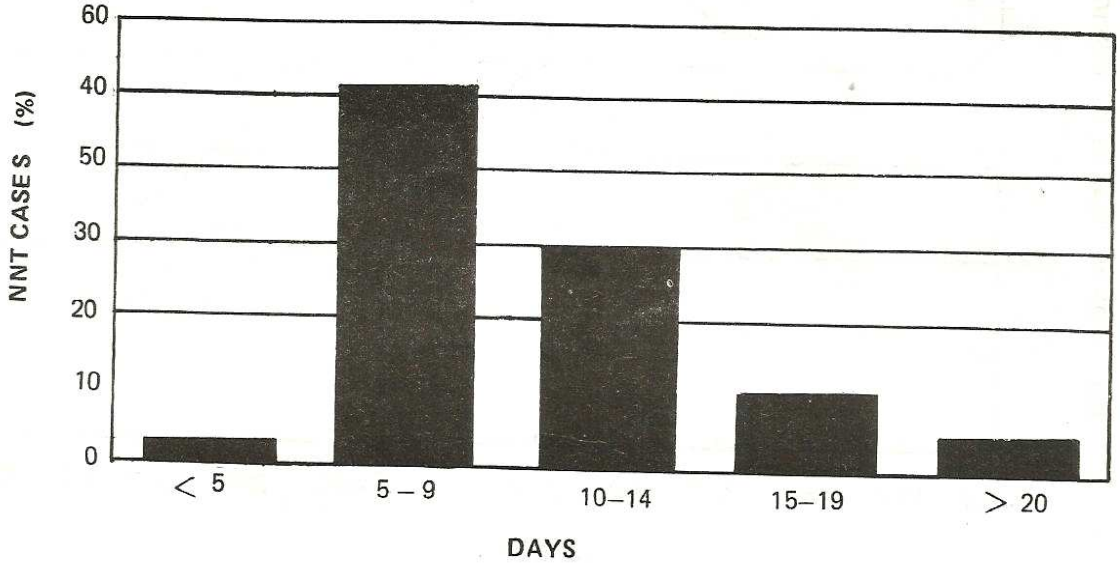

FIG. 3 AGE ON ADMISSION

TABLE IV

DURATION OF STAY IN HOSPITAL OF NEONATAL CASES

TYPES OF CASES	MEAN + S.D. DURATION (DAYS)
NNT DEATHS	5.9 ± 5.1
NNT SURVIVORS	22.7 ± 13.5
TOTAL NNT CASES	15.90 ± 14.79

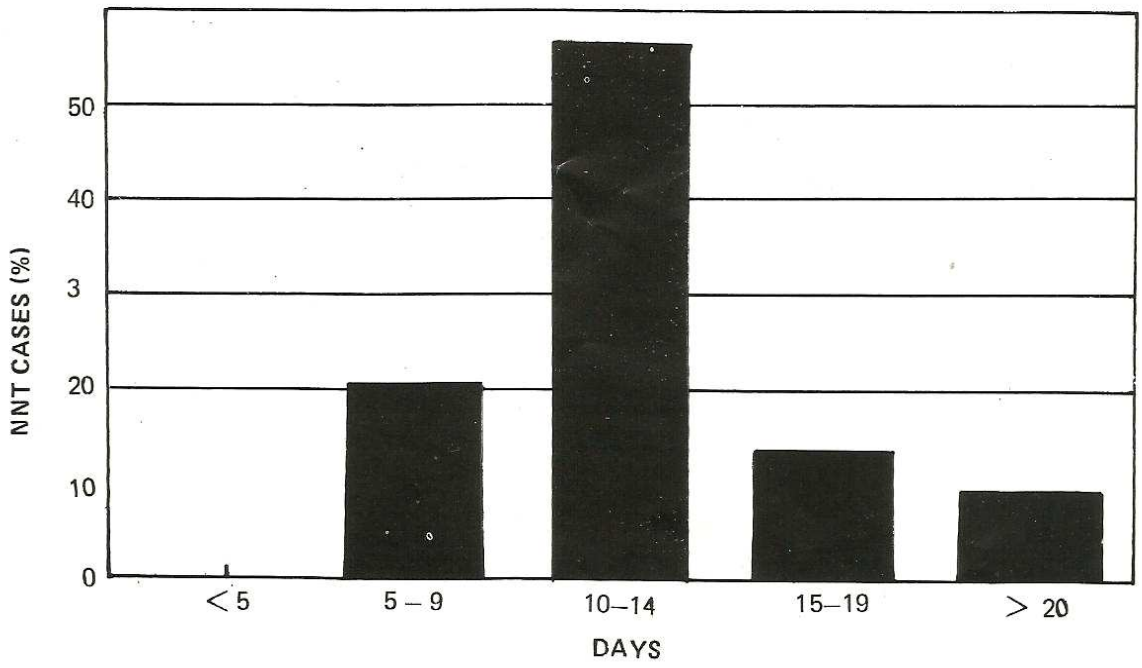

FIG. 4 AGE AT DEATH

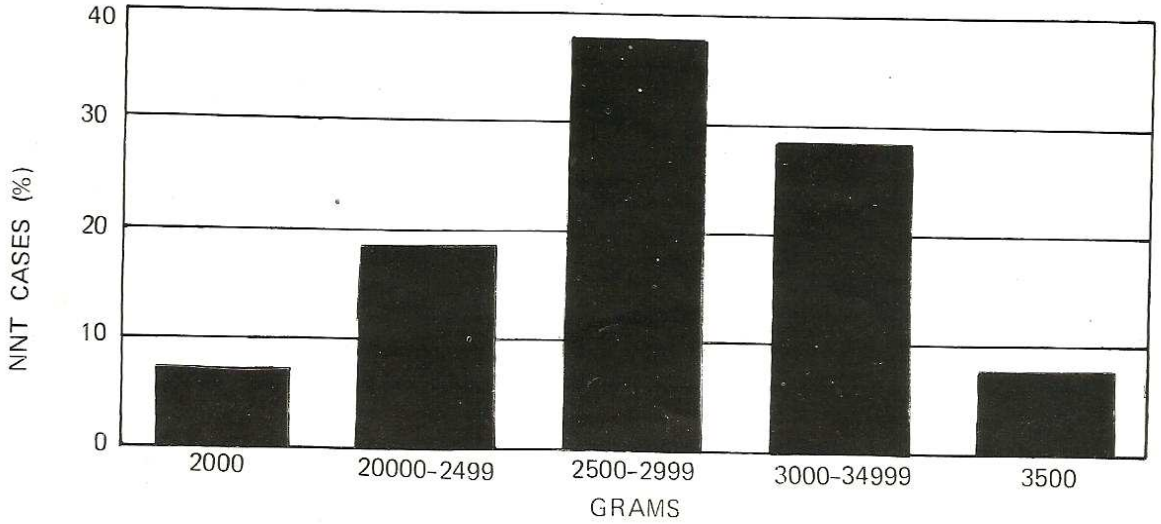

FIG. 5 BODY WEIGHT ON ADMISSION

fied as pre-term, whilst 94.9% were reported to have been delivered at term. Precise gestational history was however lacking as was the history of maternal tetanus toxoid immunisation for most mothers. Only eight mothers had record of having received the first dose of tetanus toxoid during pregnancy. Three of the deaths occured from among the babies of these mothers.

DISCUSSION

The results obtained from this study suggest that the admission rate for neonatal tetanus has reduced only slightly since the commencement of the EPI Programme in Nigeria in 1984 even though admission rates may not correlate fully with incidence rates in the community. However, the fact that access to health facilities in metropolitan Lagos is quite high and that health facilities are often patronised for very serious illnesses makes it likely that hospital admission rates for neonatal tetanus will reflect the magnitude of the problem in the area that are served by these health facilities.

The male/female ratio rates of 1.3 reported in this study is comparable to a report of 1.3:1 from Port Harcourt,[5] 1.2:1 from Ibadan[6] and1.36:1from Sierra Leone[9] although others have reported a ratio approaching 2:1[10,11]

There is limited information on the seasonality of neonatal tetanus. The incidence of neonatal tetanus in Nigeria has been noted in one study to be higher during the dry season than in the wet season with a peak incidence in February[12] In another study in Nigeria the peak was between May and August coinciding with the rainy seasons.[5] This contrast with our study which revealed peaks of neonatal tetanus hospital admission rates in May and November (which are relatively hot months) with a nadir of admission rate in July during the rainy season. It should be noted however that in our study as well as in other reports, the possibility that the observed pattern may be a reflection of a seasonal distribution of births has not been eliminated.

The mean age on admission of 10.4 days observed in the current study suggests that on the whole the cases presented somewhat late possibly as a result of delay in diagnosis at the Primary Care level. The distribution pattern of the babies weights on admission correlates well with the normal distribution pattern of the neonatal population in general with the exception of the prevalence of low birth weight babies i.e. < 2500 grams which was found to be relatively low at 6.2%

Neonatal tetanus is associated with a high mortality although this fact is not always apparent in studies which, if they are community based, may reveal the general tendency of families to avoid any discussion on neonatal deaths. Hospital – based data in Benue Plateau State[2] suggest a case fatality ranging from 0.66 per cent to 8.1 per cent which is much lower than the value of 42% observed in the present study. Others have reported case fatality rates varying in magnitude of 60.3%[5], 54.4%[6], 89.6%[12] and 73%.[13] The male to female NNT death ratio of 1.5 in this study is somewhat higher than the male to female NNT admission ratio suggesting that males are at higher risk of dying from the disease. This male to female death ratio is similar to that reported in the study in Ibadan.[6]

Most deaths in this study occurred between the 10th and 14th day of life in contrast to other studies which reported that most deaths occured within the first seven days of life. This observed discrepancy correlates well with the fact that our patients presented at a later age.

One important highlight of this study is the fact that none of the mothers of these babies was reported to have received full immunisation with tetanus toxoid and only eight mothers had received one dose of the tetanus toxoid antigen. Records of the place of delivery were scanty but it would appear that the majority of the babies were delivered at home. This raises the crucial issue of the failure of thecurrent strategy to achieve the expected immunisation coverage of pregnant mothers that could result in a significant reduction in the prevalence of neonatal tetanus. The current immunisation coverage rate with two doses of tetanus toxoid is abysmally low at only about 15%.[14] It is therefore

not surprising that whereas dramatic decreases in the prevalance of measles and poliomyelitis have been reported,[7,8] the impact of the EPI on the prevalence of neonatal tetanus has not been impressive. Alternative approaches which must be considered in attempting to accelerate the contol of neonatal tetanus are improvement in obstetrical and neonatal care and expansion of tetanus immunisation to all women of child bearing age.

The feasibility of both approaches will need to be carefully considered and a sustainable option adopted within the constraint of the present level of the development of our health infrastructure. Invariably however, both strategies may have to be implemented concurrently allowing for a disparate rate of progress.

ACKNOWLEDGEMENT

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