NEONATAL TETANUS IN NORTHERN REGION, GHANA – A CASE REPORT

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Abstract

Maternal and Neonatal Tetanus (MNT) has become a rare disease in Ghana following the intensive immunization campaigns over the last few decades. The country was certified as MNT-free by the World Health Organization (WHO) in 2013.We report on 2 cases of Neonatal Tetanus (NT) seen in the Northern Region of Ghana. Although the mothers of both patients attended antenatal clinics, they were not vaccinated against tetanus. Both patients were successfully managed and discharged from the hospital. These cases call for practitioners to be mindful of sporadic cases of NT that may present to our facilities.

Key Words: Neonatal Tetanus, Tetanus toxoid, Tamale Teaching Hospital

Introduction

Neonatal tetanus (NT) is a potentially fatal bacterial infection caused by Clostridium tetani and is attributed to unhygienic practices during birth and early neonatal period. In 2000, when the World Health Organization (WHO) and other partners initiated the Maternal and Neonatal Tetanus (MNT) elimination initiative, > 500,000 babies died annually due to NT and most of these deaths occurred in developing countries[1]. About 15 years later mortality from NT has been reduced by more than 90% with 24 out of the original 59 countries, mostly in Sub-Saharan Africa and South East Asia, yet to be certified as MNT-free [2].

In line with global trends, NT in Ghana has moved from being a major cause of mortality to becoming a very rare disease[3,4]. The country was certified as MNT-free by WHO in 2013 after validation studies in two of the poor performing districts[4]. This massive success has been possible due to the introduction of the tetanus toxoid for pregnant women, intensive immunization campaigns, improved delivery practices and active case surveillance[5].

We report on 2 cases of NT who were managed successfully in the Tamale Teaching Hospital (TTH).

The aim of this report is to remind practitioners to be on the look-out for possible new cases of NT.

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Case 1: A 14 days old neonate was referred from the Savelugu Municipal Hospital on account of poor suckling and fever for 4 days and generalized body spasms for 1 day .

The baby was a home delivery at term, the umbilical cord was tied with a used thread, and she was not seen by a health care professional until the onset of symptoms. Her mother reported using shea butter for daily cord dressing. She was first treated for unspecified infection at a local health center but was subsequently referred after 2 days when there was no improvement.

The mother was a 20 year old G2P2A2 who attended antenatal clinics twice in each pregnancy at a community health center. She was not offered tetanus toxoid (TT) in any of the visits.

On physical examination, the weight was 2640 Grams, axillary temperature 38.2oC, respiratory rate 58/minute, Heart rate 143 beat/minute and SPO2 95 % on room air. The baby was generally hypertonic with extended limbs (decerebrate posture), foaming from the mouth and had trismus (figure 1). She had generalized spasms which increased with sound and contact. The abdomen was tense with a reducible umbilical hernia.

She was diagnosed as a case of NT and admitted to the Neonatal Intensive Care Unit (NICU) of the TTH for management.

She was given single doses of Anti-tetanus serum (ATS) 5000 IU and TT and put on intravenous (IV) crystalline penicillin and gentamicin. She was also started on phenobarbital IV 5mg/kg/day twice daily and diazepam IV 0.3 mg/kg/day trice daily to control the spasms. She was given maintenance IV fluids appropriate for age for the first 5 days as initial attempts to pass nasogastric (NG) tube for feeding was not successful.

Figure 1: Patient with generalized hypertonia, spasms and trismus on admission

Feeding was initiated with expressed breast milk given through NG tube after day 5 on admission. She tolerated feeds well and IV fluids were stopped on day 14 of admission after full enteral feeding with NG tube was established. The mother started feeding by breast as patient's suck reflex returned slowly from day 15 of admission.

The blood culture sent at admission reported no pathogenic growth. IV Crystalline penicillin and gentamicin were given for a total of 14 days. The IV diazepam treatment was stopped after 9 days with improvement of spasms. She received phenobarbital for the entire duration of admission.

On day 17 of admission, she was completely free of any spasms but remained hypertonic and regular breast feeding was established by the mother. She was successfully discharged on day 20 of admission with oral phenobarbital 5mg/kg/day with a plan to review at the NICU clinic after 1 week. The family did not return for the review.

Case 2: A 16 days old male neonate was referred from the Tamale Central Hospital with fever and general body spasms for 5 days. He was delivered at home, the immediate postpartum period was uneventful and he was well until the onset of symptoms. He had poor feeding and difficulty in breathing. The mother reported using shea butter for daily cord dressing.

The mother was a G1P1A1 and, the pregnancy was carried to term. She attended antenatal clinics twice at a community health center but received no TT vaccine.

On physical examination, the weight was 2100 Grams, axillary temperature was 38.80C, and SPO2 was 93% on room air . He appeared very sick, he was opistotonic with pustular rashes on head, face and neck. He had lower chest in-drawing. He was generally hypertonic with spontaneous spasms.

He was diagnosed of NT, and admitted to the NICU for management.

He was started on IV metronidazole because crystalline penicillin was out of stock. IV ceftriaxone was added to the treatment for suspected coexisting sepsis.

Single doses of TT and anti-tetanus serum were given. The spasms were managed with intravenous phenobarbital and chlorpromazine.

Maintenance IV fluids appropriate for age was given while NG tube feeding with expressed breast milk was initiated 1 day after admission. The mother was also given her first dose of TT.

The antibiotics were given for 10 days .Cup feeding with breast milk was started slowly as muscle spasms improved.

On day 18 of admission, his general condition had markedly improved with further reduction in spasms and increased mobility in all joints. Breastfeeding and top up feeds by cup could then be given. Physiotherapy was started while on admission.

On day 24 of admission he was completely free of spasms, was generally well and all medications had been stopped. He was discharged to continue physiotherapy on out-patient basis. He was also scheduled for regular NICU clinic reviews but family never showed up. The disease control officers of TTH visited the family in the community and reported back that he was doing well.

Discussion

NT can be effectively prevented and eliminated by routine vaccination of pregnant women with TT and adherence to clean delivery practices but many neonates still die from this condition annually[6]. As observed in the cases presented here, the main reasons for NT is unprotected pregnancy and the use of unapproved substances for cord care during the early neonatal period[7]. In the first case, a non-sterile thread was used to tie the cord after cutting it. Shea butter, which is common in Northern Ghana, was used for daily cord care in both cases.

The mothers in both cases did not receive a single dose of TT although they attended antenatal clinics in the second and third trimesters of pregnancy. A pregnant woman needs to receive at least 3 doses of TT for a pregnancy to be completely protected against MNT[8] .Therefore, in both cases, the pregnancies were not protected against this serious condition .Although majority of pregnant women attend antenatal care at least twice during pregnancy, the content and quality of care provided can differ by type and level of facility[9]. Post- discharge follow-up of both cases revealed that both facilities were short of supplies when these mothers attended the clinics.

Case fatality in NT is almost 100% without treatment and it's still very high even with treatment in resource poor settings that bears the brunt of the disease[6,10.]

In a number of studies, low birth weight, early onset of symptoms and delay in presentation has been found to be linked with poor prognosis[11,12]. Although one of our cases weighed 2.1 Kg at birth, both cases presented after day 7 of life and before the onset of spasms.

These prognostic factors coupled with very close monitoring, nursing and timely administration of medications for spasms could have mitigated for good outcomes in both patients.

It is important to follow up patients with NT after discharge from hospital for possible long term complications but both patients did not return for outpatient reviews.

Conclusion

Sporadic cases of NT are likely to present to health care facilities although Ghana has been certified as MNT-free. Health care providers need to maintain a high index of suspicion in order not to miss these cases. Advocating and adhering to clean delivery practices and cord care, maintaining high TT uptake and active case surveillance will ensure the country sustains this hard earned status.

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