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LETTER TO EDITOR (VIEWERS CHOICE)

PEDIATRIC TETANUS IN SÃO TOMÉ AND PRÍNCIPE: A CALL FOR IMPROVED VACCINATION SCHEDULE

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We present here three cases of pediatric non-neonatal tetanus that occurred in São Tomé e Príncipe, between September and October 2021. These cases are a reminder to readers of Pediatrics Oncall, of the impact of gaps in vaccination coverage and the critical need for improved prevention strategies in low-resource settings.

All three school aged children were born and raised in São Tomé e Príncipe, previously healthy, and vaccinated according to the national immunization program, which includes a three-dose primary series of diphtheria, tetanus, and pertussis vaccine at 6, 10, and 14 weeks, followed by a booster at 10 years old.

Case 1: An 8-year-old boy sustained a puncture wound to his right sole from a speck of wood. Three days later at a healthcare center, a foreign body was removed, and a tetanus booster was administered. Initially treated with penicillin G, his condition worsened by day 5 with muscle spasms and gait disturbance, requiring transfer to the main hospital. Metronidazole was added, and he developed trismus and lower limb spasticity. After 18 days of treatment and physiotherapy, he was discharged with mild right foot spasticity but could walk independently.

Case 2: A 9-year-old girl sustained an ankle laceration from a glass shard. Without antibiotics or a tetanus booster, she presented with paraparesis three days later. She evolved with opisthotonos, spasms, and rigidity on hospitalization, leading to a clinical diagnosis of tetanus. Treated with penicillin G, metronidazole, diazepam, and sensory restriction. Despite limited resources - antitetanic immunoglobulin was unavailable - her condition gradually improved and she was discharged on day 32, able to stand, and referred for rehabilitation.

Case 3: A 5-year-old boy presented with trismus, risus sardonicus and slow movements caused by cervical and lumbar spasticity, along with multiple foot wounds. Diagnosed with tetanus, he was treated with penicillin G, metronidazole, diazepam, and physiotherapy. His symptoms improved significantly, and he was discharged on day 20, referred for outpatient physiotherapy.

Tetanus remains a potentially life-threatening disease, especially in low-resource settings with suboptimal vaccination and treatment. Despite the decline in global incidence, it is important to remember that the disease persists in developing countries, where minor injuries often go untreated.[1,2]

Tetanus is a clinical condition characterized by trismus, autonomic dysregulation, and painful muscle spasms.[3,4,5] Disease severity is influenced by toxin load, incubation period, and time to symptom onset.[2] Generalized tetanus, the most severe form, is unfortunately the most prevalent.[1]

As demonstrated by these cases, tetanus management requires a multi-faceted approach. Key interventions include: wound debridement, antibiotic therapy to suppress toxin production, toxin neutralization (when available), muscle relaxants, and vigilant symptom management.[2,6,7] Metronidazole is generally favored over penicillin due to its lower risk of central nervous system excitability.[2,4] Prompt treatment initiation is crucial to halt disease progression and prevent complications, particularly respiratory failure, a leading cause of tetanus-related mortality.[1,2]

In Case 2 and 3, the lack of wound debridement and a tetanus booster at the time of injury resulted in a more severe disease and progression to generalized tetanus, compared to Case 1, where prompt wound care and vaccination were performed, and contributed to a milder disease course, characterized by localized symptoms.

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The cornerstone of tetanus prevention is vaccination.[8] WHO recommends a primary series of three doses in infancy and three boosters during childhood and adolescence[4] for long-lasting immunity (20-30 years).[8] However, in São Tomé, only the primary series and one booster at 10 years are given. This leaves children aged 3-5 vulnerable, given the natural weaning of antibody protection, as they often play outdoors barefoot, increasing their risk of injuries that predispose to tetanus.

These cases highlight gaps in tetanus prevention and management in São Tomé e Príncipe, particularly the inadequate vaccination schedule, with the absence of booster doses in early childhood contributing to children's susceptibility. This emphasizes the need to align the national schedule with WHO recommendations by adding two booster doses during preschool years. Additionally, delayed or inappropriate wound management played a critical role in disease severity, underscoring the need to educate healthcare providers and the public on proper wound care for tetanus prevention. In response, the work group contacted the Head of the Vaccination Program to stress the importance of the booster dose, as its absence puts children at risk, as evidenced by these cases.

Lastly, the limited availability of treatment resources, like antitetanic immunoglobulin, highlights the challenges of managing severe tetanus in low-resource settings. This underscores the importance of robust prevention programs, as effective immunization and wound management can reduce tetanus incidence and the need for intensive treatments. Strengthening healthcare systems and prioritizing prevention are both crucial for improving outcomes and reducing the disease burden.

Tetanus, despite being entirely preventable, remains a critical public health threat that demands immediate global attention and decisive action. Thank you for considering this subject and its importance.

Compliance with Ethical Standards

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Conflict of Interest None

References:

1. Woldeamanuel YW, Andemeskel AT, Kyei K, Woldeamanuel MW, Woldeamanuel W. Case fatality of adult tetanus in Africa: Systematic review and meta-analysis. J Neurol Sci. 2016;368:292-299. doi:10.1016/j.jns.2016.07.025.
2. Thwaites L. Tetanus. UpToDate. https://www.uptodate.com/contents/tetanus?search=tetano&source=search_result&selectedTitle=1~150&usage_type=default&display_rank=1. Published 2022.
3. Tadele H. Clinical Profile and Outcome of Pediatrics Tetanus: The Experience of a Tertiary Hospital in Ethiopia. Ethiop J Health Sci. 2017;27(5):559-564. doi:10.4314/ejhs.v27i5.14.
4. Ataro P, Mushatt D, Ahsan S. Tetanus: A review. South Med J. 2011; 104(8):613-617. doi:10.1097/SMJ.0b013e318224006d.
5. Rhinesmith E, Fu L. Tetanus disease, treatment, management. Pediatr Rev. 2018;39(8):430-432. doi:10.1542/pir.2017-0238.
6. Barlas ÜK, Kıhtır HS, Yeşilbaş O, et al. Tetanus; a forgotten infection disease: A report of two cases. Turk J Pediatr. 2020;62:274-279. doi:10.24953/turkjped.2020.02.014.
7. Tiwari TSP, Moro PL, Acosta AM. Tetanus. Em: Prevention C for DC and, ed. Epidemiology and Prevention of Vaccine-Preventable Diseases; 2021:315-328. https://www.cdc.gov/vaccines/pubs/pinkbook/tetanus.html.
8. Havers FP, Moro PL, Hunter P, Hariri S, Bernstein H. Use of Tetanus Toxoid, Reduced Diphtheria Toxoid, and Acellular Pertussis Vaccines: Updated Recommendations of the Advisory Committee on Immunization Practices - United States, 2019. MMWR Morb Mortal Wkly Rep. 2020;69(3):77-83. doi:10.15585/mmwr.mm6903a5.