MENINGOCOCCAL SEROGROUP B SEPTIC SHOCK: VACCINE FAILURE

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INTRODUCTION

Invasive meningococcal disease (IMD) continues to be the most devastating infectious disease in childhood, affecting otherwise healthy, young individuals. The disease is still associated with a high mortality rate and persistent neurologic defects, particularly among infants and young children.

Most cases of IMD are caused by serogroups B and C, with serogroup B being dominant.

Its incidence has been decreasing due to the use of vaccines against different serogroups. The 4 component vaccine against serogroup B is available since 2014.

CASE PRESENTATION

IDENTIFICATION

- 7-year-old boy
- Previously healthy
- Completed immunization schedule (2 doses of meningococcal serogroup B vaccine)

HISTORY

- Fever (39,5°C)
- Petechial rash on the lower limbs and trunk
- Headache, neck stiffness, confusion and decreased consciousness level

PHYSICAL EXAMINATION

- GCS 14
- MAP 50 mmHg
- HR 140 bpm; RR 30 bpm; CRT 4 sec
- Conjunctival petechiae + petechial rash on the lower limbs and trunk + petechial suffusion on the right foot
- Kernig +

WORKUP

- Blood culture and CSF examination
- *Neisseria meningitidis* serogroup B / ST 41-44 clone
- Head CT scan – normal
- Electroencephalogram (EEG) – normal
- Study of immunity – normal

SEPTIC SHOCK + MENINGITIS

TREATMENT AND FOLLOW-UP

- Organ-support (catcololamines and mechanical ventilation)
- Ceftriaxone (100 mg/Kg/day)
- Unremarkable course. Discharged after 15 days
- No neurological sequelae

COMMENTS

Vaccinated children should be protected against this clone, according to the Portuguese Meningococcal Antigen Typing System (MATS). We present the first case of vaccine failure in Portugal. Serogroup B *Neisseria meningitidis*, belonging to the ST 41-44 clone is one of the the most frequently serogroup B meningococcal clones found in Portugal and responsible for IMD. The effectiveness of a vaccine is determined not only by the immunogenicity of its components, but especially by how widely it covers the disease, causing strains circulating in a given region and number of cases of vaccine failures.