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RESEARCH ARTICLE

HAEMOPHILUSINFLUENZAE TYPE B MENINGITIS REVEALING HYPOGAMMAGLOBULINEMIA IN A VACCINATED CHILD

F. Taher, H. Alaoui, K. Elfakiri, N. Rada, G. Draiss and M. Bouskraoui
Department of Pediatrics A, Pediatric Infectious Diseases Unit, Mohammed VI University Hospital, Marrakesh, Morocco.

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Abstract

Haemophilusinfluenzae type b (Hib) meningitis is a major therapeutic emergency, and its incidence has been significantly reduced by vaccination.We report the case of a 4-year-old girl vaccinated against Hib, hospitalized for Haemophilus influenza type b meningitis revealed by a febrile meningeal syndrome and having revealed a hypogammaglobulinemia. The child was treated with antibiotic therapy associated with corticosteroid therapy and immunoglobulin substitution with a good evolution. Through this observation we conclude that the assessment of the immune deficiency must be systematically proposed in front of a neuromeningeal infection with Hib.

Introduction:-

Case Report:

A 4-year-old girl, vaccinated according to the national immunization program, with no notable pathological history, was admitted for an acute fever without any other associated sign. The clinical examination showed a drowsy child, with a Glasgow score (GS) of 13/15, hemodynamically and respiratorily stable, febrile at 39°, the neurological examination showed meningeal stiffness and positive Kernig and Brudzinski signs. It should be noted that the child had a staturopunderal delay at -3DS (Weight=10kg and height=90cm) for which she is not followed up.

On admission to the emergency room, a brain scan was performed first, which did not reveal any abnormality. A lumbar puncture was performed, showing a turbid cerebrospinal fluid (CSF) with leukocytes at 340/mm3, 70% of which were neutrophils. The direct examination did not reveal any germ and the biochemical study of the CSF showed a deep hypoglucorrhagia at 0.016g/l.The CSF PCR was positive for Haemophilusinfluenzae. While waiting for the results of the CSF culture and the antibiogram, the child was put on antibiotic therapy based on ceftriaxone 100 mg/kg/D associated with dexamethasone at a dose of 0.6mg/kg/D. The infectious work-up was positive with a hyperleukocytosis of 23870 and a CRP of 33mg/l.

On her 3rd day of hospitalization, the child became apyretic and she regained consciousness with a SG at 15/15th.

The CSF culture was positive for C3G-sensitive Haemophilusinfluenzae, and the agglutination complement revealed serotype b Haemophilusinfluenzae. blood cultures were negative. An immune deficient field was suspected, retroviral serology was negative and the immunoglobulin weight assay indicated a low total IgG level of 1.64, a low total IgM level of 0.19 and a low total IgA level of 1.24 and a normal lymphocyte level, these results were in favor of a hypogammaglobulinemia retained before the persistence of low immunoglobulin levels on a second blood

Corresponding Author:- F. Taher
Address:- Department of Pediatrics A, Pediatric Infectious Diseases Unit, Mohammed VI University Hospital, Marrakesh, Morocco.

sample. Antibiotic prophylaxis with trimethoprim and sulfamethoxazole combined with intravenous immunoglobulin infusion was introduced in the patient with good tolerance. Currently the child receives immunoglobulins regularly every four weeks, and audiometry has not revealed any auditory sequelae.

Discussion:-

Although Haemophilusinfluenzae has different strains and serotypes. The vaccineanti Hib acts only on one serotype b, with the view that it was once more most incriminated ininvasive infections of Haemophilus including meningitis. The widespread use of Hib vaccination has reduced the number of cases of invasive infections in vaccinated individuals (3), but has also been reduced by decreased porting in unvaccinated individuals. (4)

Our case was correctly vaccinated according to the scheme adopted in Morocco, which is 3 primary doses without recall. Although not recommended by the WHO, studies have shown that giving a booster dose of Hib vaccine at the end of childhood or the second year of life is beneficial for a more lasting gain in immunological memory from early childhood. (5)(6)

Humoral deficiency has been described as common in invasive heamophilusinfection(7), and hypogammaglobulinemia has been reported as one of the major risk factors for invasive Hib infection (8). Other risk factors include: age less than 5 years, anatomical or functional asplenia, hematopoietic stem cell transplantation and HIV infection (8). Our patient had age and biologically confirmed hypogammaglobulinemia as risk factors, however, the search for an immune deficiency must be systematic before any invasive Hib infection.

Hypogammaglobulinemia was retained in our patient after a second immunoglobulin blood sample was taken at a later date, because no clinical or immunological evidence allowed differentiation between transient hypogammaglobulinemia in children and an immunoglobulin deficiency(9).

The therapeutic management adopted in our patient does not differ from that reported in the literature, the third generation cephalosporins still remain effective againstHib, such as cefotaxime and ceftriaxone, which were the recommended empirical antibiotic therapy for suspected Hib meningitis(10). Desxamethasone is recommended in some studies as an adjunctive treatment to prevent and reduce complications of Hib meningitis including neurosensory.(10)

Immunoglobulin substitution combined with antibiotic prophylaxis remains the gold standard treatment for primary hypogammaglobulinemia. Polyvalent immunoglobulins prevent infections and impairment of respiratory function(11).

Conclusion:-

Haemophilusinfluenzae type b meningitis has been significantly reduced by vaccination. Therefore, the search for an underlying immunodeficiency must be systematic in order to establish an early diagnosis and to initiate appropriate management.

Conflicts of interest:
None.

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