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NONSTEROIDAL ANTI-INFLAMMATORY DRUG INDUCE ASEPTIC MENINGITIS: CRITICAL CARE CASE REPORT

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ABSTRACT

Aseptic meningitis is an inflammation of the brain and spinal cord membranes (meninges) mainly by nonbacterial organisms, specific agents, or other disease processes. A case of 14-year-old Saudi boy developed aseptic meningitis. Symptoms resolved gradually within 72 hours after ibuprofen discontinued and underline conservative treatment.

KEYWORDS: ICU, Drug-induced aseptic meningitis, Ibuprofen, Critical Care. Non-steroidal anti-inflammatory drugs.

INTRODUCTION

Aseptic meningitis is an inflammation of the brain and spinal cord membranes (meninges) mainly by nonbacterial organisms, specific agents, or other disease processes. Drug-induced aseptic meningitis (DIAM) is an uncommon adverse reaction to some commonly used medications.[1,2] DIAM is a rare but important and often challenging diagnosis for the primary care physician. Non-steroidal anti-inflammatory drugs (NSAIDs) account for most cases of DIAM, NSAIDs represent the largest category of reports of DIAM, and ibuprofen is the most common cause of DIAM. The clinical presentation of DIAM is widely distinct. Symptoms typically include fever, headache, neck stiffness, confusion, nausea and vomiting.[3–5]

CASE REPORT

14-year-old Saudi boy medically free, With History of leg fracture 1 week prior to the admission, underwent external fixation and discharged from the hospital on ibuprofen. 2 days after discharge patient started to have fever, headache and nausea. No history of chronic

headache or previous allergic drug reaction. 5 days later Presented to the emergency department with the same symptoms associated with blurred vision and dizziness. On examination, he was febrile, with conjunctival irritation, neck stiffness, drowsiness and stupor. Patient admitted to ICU to prevent further deterioration and Full septic work up done which revealed total white cell count 10000/µl (75.3% neutrophil and 23.7% lymphocytes),c-reactive protein 3mg/L. Lumber puncture showed clear cerebrospinal fluid with total white cell count 181/mm3 (1% neutrophils and 99% lymphocytes), Glucose 60 mg/Dl, total protein 600 mg/Dl, no gram stain organism, bacterial antigen screening was negative, Enteroviral polymerase chain reaction negative, blood and urine cultures were negative. Autoimmune diseases screening was negative. Symptoms resolved gradually within 72 hours after ibuprofen has been discontinued. The patient discharged home with a presumptive diagnosis of aseptic meningitis induced by Nonsteroidal anti-inflammatory drug. Patient was advised to avoid taking Nonsteroidal anti-inflammatory drugs.

DISCUSSION

NSAIDs remain one of the most consumed drugs either by prescription or over-the-counter NSAIDs one of the most common prescribed medication in use reach 70 million prescriptions per year. The rare presentation between NSAIDs and meningitis should not be overlooked. Many patients who experience meningitis caused by NSAIDs had to used other NSAIDs without any problems.[6] further more patient how have to used more than one NSAIDs and have recurrent presentation with meningitis should take in consider Switching the patient to a cyclooxygenase 2 inhibitor, witch not the definitive answer. Because latterly those classes have also been implicated aseptic meningitis.[7,8]

Nonsteroidal anti-inflammatory drugs (NSAIDs) are a group of therapeutic agents with diverse structural and pharmacodynamics profiles but similar mode of action. Broadly, NSAIDs are grouped into aspirin and non-aspirin NSAIDs.[9] Despite similarities in their mechanism of action and toxicity the essential action of NSAIDs is reducing the production of prostaglandins by inhibiting prostaglandin synthetase.[10] This is simple mechanism, however, unclear central nervous system (CNS) manifestation, and why can develop meningitis after taking one NSAID but not after taking another. Furthermore, drugs like isoniazid and TMP/SMX, which consider as non-NSAID drugs do not affect the prostaglandin pathway and also been relatively associated with aseptic meningitis.[10]

2 major mechanisms were put forward for drug-induced aseptic meningitis. The first mechanism proposed direct meninges irritation through the intrathecal administration of a drug, and the second one proposed hypersensitivity reaction to drug specially type III or IV.[11] Last evidence updates circumstantially about the rapid symptoms appearance after taking the drug, rapid reversal after stopping the drug, period incubation reducing with repeat attacks. however, Other CNS manifestation have been described, especially in the elderly patient's which include cognitive deficits and acute psychosis and, over all underlining mechanism still not understood.[12]

Depinning on clinical differentiation alone is not possible, and the CSF pattern with neutrophilic pleocytosis could misleading with infectious meningitis. Most of the cases resolved after drug discontinuation. Diagnosis of aseptic meningitis is based on excluding either viral or bacterial cause.[13] NSAIDs, antibiotics, antiepileptic drugs, monoclonal antibodies and intravenous immunoglobulins are the most frequent cause of drug induced meningitis. Specific drug history is important because there are no specific characteristics associated with a specific drug.[14]

CONCLUSION

Drug-induced aseptic meningitis (DIAM) is an uncommon adverse reaction to some commonly used medications. The pathophysiology of DIAM usually begins rapidly after administration. We emphasizes the importance of taking a thorough medication history in individuals with suspected meningitis.

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