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Association of Mycoplasma Pneumoniae with Anti NMDA Receptor Autoimmune Encephalitis in a Female Child: A Case Report.

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ABSTRACT

A 6 year old female child presented with movement disorder, cognition impairment, insomnia and restlessness. She was diagnosed with NMDA receptor autoimmune encephalitis triggered by Mycoplasma pneumoniae and was treated successfully with high dose steroids, Intravenous immunoglobulin and Clarithromycin. A 6 year old Female child of Indian origin presented with visual hallucinations, intermittent jerky movements of left leg and left arm, agitation, screaming episodes and insomnia. On examination she had cognition impairment with truncal ataxia. MRI Brain was Normal. EEG showed epileptiform activity over right hemisphere. Mycoplasma antibody titre was strongly seropositive .Serum and CSF NMDA Receptor antibody was positive. MRI STIR was negative. After appropriate investigations, she was diagnosed with NMDA Receptor autoimmune encephalitis triggered by Mycoplasma pneumoniae and was treated successfully with high dose steroids, Intravenous immunoglobulin and Clarithromycin. NMDA Receptor encephalitis is the most common cause of autoimmune encephalitis in children. 6% to 50% of patients with anti-NMDAR encephalitis have been found to have an associated underlying tumor. Mycoplasma pneumoniae are the main presumed infectious pathogens associated with majority of the autoimmune encephalitis. It is suggested that early onset encephalitis is a direct type extrapulmonary manifestation involving cytokines and late onset encephalitis is of the indirect type involving autoimmunity. Mycoplasma infection affecting children can lead to neurological complications like autoimmune encephalitis. Further studies in this area can help to lighten the etiology of autoimmune disorders.

Keywords: NMDR Autoimmune encephalitis, movement disorder, Mycoplasma pneumoniae, Cognition impairment.

INTRODUCTION

Objective

6 year old female child presented with movement disorder, cognition impairment, insomnia and restlessness. She was diagnosed with NMDA receptor autoimmune encephalitis triggered by Mycoplasma pneumoniae. She responded successfully to high dose steroids, Intravenous immunoglobulin and Clarithromycin.

CASE REPORT

6 year old Female child of Indian origin presented with visual hallucinations, intermittent jerky movements of left leg and left arm, agitation, screaming episodes and insomnia prior to admission 7 days. On examination there was no eye to eye contact She was "lost in her own world". Truncal ataxia with intermittent jerking of left arm and left leg was noted which was seen in sleep as well. There was no nystagmus. No cerebellar signs or focal neurological deficit was found.

Investigations

Her full blood count, Erythrocyte sediment rate, liver and renal profile was normal. Her drugs of abuse screen was negative. MRI Brain was Normal. EEG showed epileptiform activity over right hemisphere. Serum and CSF NMDA Receptor antibodies were found to be positive. CSF was normal with protein of 0.11 mmol/l and Glucose of 3.8 mmol/l. viral antigen panel was negative. Her Mycoplasma antibody titres initially were negative but repetition after two weeks were found to be strongly positive with titres of 1:640. Abdomen scan was done to rule out any mass which was negative. MRI STIR was negative.

RESULT

She was diagnosed with NMDA Receptor autoimmune encephalitis triggered by Mycoplasma

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pneumoniae and was treated with intravenous Methyl Prednisolone 30mg/kg/day for 5 days followed by oral tapering of prednisolone for six weeks. She was also given Intravenous immunoglobulin 1gm/kg/day for 2 days (2 courses 1 week apart) and Clarithromycin 250 mg four times a day for 15 days . Child gradually improved over few weeks. Her abnormal movement was disappeared over 4 to 6 weeks and cognition became normal over 6 to 8 weeks.

DISCUSSION

We describe a case of 6 year old female child diagnosed with NMDA Receptor autoimmune encephalitis triggered by Mycoplasma pneumoniae pathogen and was responded successfully to immune therapy and Clarithromycin.

NMDA Receptor encephalitis is the most common cause of autoimmune encephalitis in children. The NMDA receptor is primarily located in the forebrain, hypothalamus, pituitary, and limbic system. It is a glutamate receptor, which is the most abundant excitatory neurotransmitter. Its functions are involved in memory and learning. 6% to 50% of patients with anti-NMDAR encephalitis have been found to have an associated underlying tumor. Mycoplasma Pneumonia is presumed pathogen associated with majority of the autoimmune encephalitis. A possible association between anti-NMDAR encephalitis and herpes simplex virus (HSV) encephalitis has also been seen.

It is suggested that early onset encephalities is a direct type extrapulmonary manifestation involving cytokines and late onset encephalitis is of the indirect type involving autoimmunity.

Child can present with wide variety of symptoms like behavioral changes, seizures bizarre movements, Impaired cognition, memory deficits, speech problems. As far as treatment is concerned the first-line immunotherapy is high dose steroids to suppress the immune system, intravenous immunoglobulin and in critical patients plasmapheresis is needed to physically remove auto antibodies.

A study of 577 patients showed that over four weeks, about half the patients improved after receiving first-line immunotherapy.

Second-line immunotherapy is rituximab, a monoclonal antibody that targets the CD20 receptor on the surface of B cells, thus destroying the self-reactive B cells.

CONCLUSION

Mycoplasma pathogen affecting children can lead to neurological complications like autoimmune encephalitis. Further studies in this area can help to lighten the etiology of autoimmune disorders.

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