



DPT Vaccination induced seizures : A case report

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ABSTRACT

A one and half month old patient developed seizures due to first dose of Diphtheria, Pertussis and Tetanus (DPT) used for routine immunization. A diagnosis of vaccine induced seizures was made after ruling out clinical significance and chief complaints. Supportive care has given.

INTRODUCTION

Immunization is the process where by a person is made immune or resistant to an infectious disease, typically by the administration of vaccine. Vaccine stimulate the body's own immune system to protect person against subsequent infection or disease.[1] Immunisation is an important part of child care practice. DPT vaccine popularly known as triple antigen which is composed of two toxoids i.e. diphtheria and tetanus as well as killed whole cell pertussis bacilli.[2] Dose for the DPT is 0.5 ml. Age for the immunisation according to NIS schedule is DPT1 dose should be given at 6 weeks of age, DPT2 dose at 10 weeks of age, DPT3 dose at 14 weeks of age. The first booster dose of DPT should be given at 16-24 month of age and second booster dose should be at 5 years of age. Recommended interval between 3 successive doses is 1 month.[3] Adverse events occurring within 48 hours after vaccination with DPT is divided into 2 reactions i.e. local and systemic reactions. Local reaction includes pain 1 per 2 doses, swelling 2 per 5 doses, redness 1 per 3 doses. Systemic reactions includes fever ($> 100.4 F$) 1 per 2 doses, fretfulness 1 per 2 doses, drowsiness 1 per 3 doses, anorexia 1 per 5 doses, vomiting 1 per 15 doses, inconsolable crying 1 per 100 doses, fever ($> 105 F$) 1 per 330 doses, collapse 1 per 1,750 doses, convulsions (with or without fever) 1 per 1,750 doses.[4]

Here we report a case of DPT induced seizure in a one and half month baby possibly due to pertussis fraction.

CASE REPORT

A one and half month old male child was brought to PICU

(Paediatric intensive care unit) with reliable informant father with chief complaints of fever since morning followed by seizures at 9:00 pm. Child was apparently asymptomatic till 9:00 pm. Then he had uprolling of eyeballs episode lasting for about 5 minutes and regained consciousness after 10 -15 minutes, no tonic clonic movements of limbs. No drooling of saliva.

Baby was immunised same day for DPT (Diphtheria, Pertussis and Tetanus) at 10:30 am. Past history shows no similar complaints.

ANTENATAL AND POSTNATAL HISTORY:

Baby birth weight was 3kgs. Mother has Oligohydramnios (+) in time of delivery. Well immunized according to NIC (National immunisation schedule). On examination child was conscious and coherent. Afebrile. Pulse rate was found to be 116 bpm. Respiratory rate was 23 breaths per minute. CVS- S1, S2 (+). Per abdomen was soft. Nothing abnormal found in CNS. Baby was investigated for Haemoglobin 6.0 gms%, TC- 4500 cells / cmms, Polymorphs- 48%, Lymphocytes- 48%, Eosinophil -2%, Monocytes- 2%. Platelets was reduced and blood smear shows anisopoikilocytosis with hypovolemia, Biochemistry tests include Random blood sugar- 184 mg%, Blood urea- 19 mg%, Serum creatinine- 0.7 mg%. Liver function test shows total serum bilirubin- 0.8 mg%, direct bilirubin- 0.2 mg%, S.G.P.T- 10 IU/L, Alkaline phosphate- 292 IU/L was performed After 4 days again complete blood picture was performed which includes Haemoglobin 11.6 gms%, TC- 10,000 cells / cmms, Polymorphs- 45%, Lymphocytes- 50%, Eosinophil - 02%, Monocytes- 03%, P.C.V- 36.4 vol%, Reticulocytes count 0.5 %.

Platelets- 3.2 lakhs/cmm, RBC- 3.67 million/cmm, MCV- 99.3 fl, MCH- 31.6 pg, MCHC- 31.8 g/dl was performed which shows normal.

Baby was prescribed with following treatment.

1. IV fluids 300 ml per 24 hours.
2. Inj. Midazolam 0.3 cc + 1 cc NS /IV/SOS.
3. Aanaol rectal suppository 80 mg (1/2 i.e 40 mg) per rectal /SOS.

Tepid sponging was advised. Treatment was followed for 4 days.

DISCUSSION

Caution should be taken when there is a symptom of convulsion with or without fever. Short lived convulsions with or without fever have not been shown to cause permanent sequel.[3] A convulsion following DTP vaccination has previously been considered a contraindication to further doses, under certain circumstances subsequent doses may be indicated, particularly if the risk of pertussis in community is high. If a child has seizures following the first or second dose of DTP it is desirable to delay subsequent doses until the child's neurological status is better defined.[4] Pertussis component of the DPT vaccine is mainly responsible for the neurological reactions. It causes neurological damage by affecting cellular signalling, catecholaminergic and GABAergic system and defect in blood brain barrier due to endotoxin mediated endothelial damage. Whole cell pertussis vaccine induced the IL-1beta production in the hippocampus and hypothalamus of vaccinated animals. Thus leads to decrease in release of the inhibitory neurotransmitters GABA and adenosine in the hippocampus and induce convulsive activity. Acellular type did not induce the IL-1BETA production.[5]

In this case Inj. Midazolam was given to baby for two days. LP test, MRI and CT scan were not performed. Child attenders were explained about lumbar puncture test need in their own language but they are not willing for the procedure to be done. Baby was kept under observation for 7 days with supportive care and there is no fresh complaint of seizures. Baby was active, vitals were stable. Per abdomen was soft. After seven days baby was discharged.

CONCLUSION

Parents must be inform about seizures during first dose of DPT vaccine to consultant physician . The DPT vaccines may be preferred to DTwP vaccine in those children with history of severe adverse effects following DTwP vaccines or children with neurological disorders.

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