Case Report

A Case Report on Therapeutic Duplication of Benzodiazepines

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ABSTRACT

A febrile seizure is a convulsion in a child caused by a spike in body temperature, often from an infection. They occur in young children with normal development but not due to any neurologic symptoms. This is a case of 4 years old male child with a diagnosis of simple febrile seizures with enteric fever. He was prescribed with two Benzodiazepine drugs (Clobazam 5mg and Lorazepam 0.45 + 2cc NS). The main aim is to minimise the post CNS effects like sedation or respiratory depression caused on concomitant administration of these drugs by improving prescription evaluation by clinical pharmacist

Keywords: Benzodiazepines, Clobazam, Lorazepam, sedation.

INTRODUCTION

Benzodiazepines (BZDs) are one of the most widely prescribed therapeutic agents. BZDs are used for numerous indications, including anxiety, insomnia, muscle relaxation, relief from spasticity caused by central nervous system pathology, and epilepsy[1].

Mechanism of action: BZDs promote the binding of gamma-aminobutyric acid, or GABA, an inhibitory neurotransmitter, to the $GABA_A$ receptor, ultimately increasing ionic currents through the ligand-gated chloride channels[2].

Common benzodiazepine uses:

- Anxiety
- Nervousness
- Panic disorders
- Muscle spasms
- Seizures
- Sleeplessness[3]

Use of benzodiazepines in epilepsy:

Benzodiazepines are among the most useful AEDs available for treating status epilepticus and acute repetitive seizures and for febrile seizure prophylaxis.[4]

CASE REPORT

A male child of age 4 years was admitted in Paediatric ward in King George Hospital, Visakhapatnam with a chief complaint of fever (Temperature is 102°F) for 10 days and involuntary movements of both upper and lower limbs. Patient has history of seizure attack 1 year ago and one episode lasting for about 30 minutes associated with uprolling of eyeballs. Patient has a complaint of drowsiness.

The patient was diagnosed as **SIMPLE FEBRILE SEIZURES WITH ENTERIC FEVER** for which he took IV fluids (DNS) 900ml over 24 hours, Inj. Ceftriaxone 50mg IV BD, Inj. Amikacin 135mg IV OD, Inj. Acetaminophen 9cc slow IV, Syrup. Acetaminophen 5ml PO TID, Tab. Clobazam 5mg PO BD, Inj. Lorazepam 0.45 + 2cc NS IV for 4 days.

Table 1: therapeutic regimen of the patient.

Drug	Dose	ROA	FREQ	D1	D2	D3	D4
IV Fluids	900ml	IV	OD	*	*	*	*
Inj. Ceftriaxone	50mg	IV	BD	*	*	*	*
Inj. Amikacin	135mg	IV	OD	*	*	*	*
Inj. Acetaminophen	9cc	IV		*	*	*	*
Syrup. Acetaminophen	5ml	PO	TID	*	*	*	*
Tab. Clobazam	5mg	PO	BD	*	*	*	*
Inj. Lorazepam	0.45 + 2cc NS	IV		*	*	*	*

DISCUSSION

In this case, the patient id prescribed with two Benzodiazepines; Clobazam and Lorazepam which may increase the risk of sedation in the patient and it may also lead to respiratory depression, coma following long term administration. Clobazam (CLB) is a 1,5-benzodiazepine that has been introduced in 1975 as an anxiolytic drug and shortly after, it was discovered that it has strong anti-epileptic properties as well[5]. Lorazepam binds to benzodiazepine receptors on the postsynaptic GABA-A ligand-gated chloride channel neuron at several sites within the central nervous system (CNS). It enhances the inhibitory effects of GABA, which increases the conductance of chloride ions into the cell[6].

Clinical Pharmacist Intervention

Co-administration of two benzodiazepines may lead to CNS complications in patient and patients may develop dependence and tolerance with long-term use. The recommendation is to use the lowest possible effective dose for the shortest period to minimise the side effects.

CONCLUSION

Concomitant administration of Lorazepam and Clobazam may lead to CNS effects like sedation and respiratory depression. As the patient is paediatric, careful administration of such drugs is very important. Therefore, physician should carefully prescribe drugs and the clinical pharmacist also must evaluate the prescription to identify and rectify such errors.

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