

Acute Isoniazid Poisoning Presenting With Convulsions And Coma

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Abstract

Purpose: We report a case of acute isoniazid intoxication presented with convulsions, and coma.

Case: An 8-year-old boy had taken 10 isoniazid tablets (100mg/tb) which had been started as a prophylactic. A nasogastric catheter was administered and gastric lavage was performed followed by the administration of activated charcoal. Immediately after the procedure, sudden convulsions began, which subsided within five minutes of the administration of diazepam infusion. As an antidote, Pyridoxine 1.5 gr (50 mg/kg/day), was administered intravenously. After 8 hours the patient regained consciousness, his general condition normalized and oral nutrition was started.

Conclusions: Pyridoxine administration is the best way of treating convulsions. Parenteral pyridoxine administration is an effective method in isoniazid intoxication.

Key Words: Convulsion, Isoniazid, Intoxication

Koma Ve Konvülsiyon İle Getirilen Akut İsoniazid Zehirlenmesi

Özet

Amaç: Konvülsiyon ve koma ile gelen akut izoniazid zehirlenmesi olan olguyu sunmak amaçlandı.

Olgu: Profilaksi amaçlı başlanan izoniazid tabletlerden (100mg/tb) 10 tane alan 8 yaşındaki erkek olgu sunuldu. Beslenme sondası aracılığı ile olguya mide lavajı yapıldı. Mide lavajı sonrasında olguya aktif kömür uygulandı. Acile getirildiği sırada konvülsiyonu başlayan olguya diazepam uygulandı ve konvülsiyonu 5. dakikada durdu. Antidot olarak Pridoksin 1.5 gr (50 mg/kg/gün) intravenöz olarak uygulandı. 8 saatlik takip sonrası hastanın bilinci açıldı. Genel durumu düzeldi. Oral beslenmeye başladı

Sonuç: İsoniazid zehirlenmesinde konvülsiyonun tedavisinde en iyi yol Pridoksin uygulanmasıdır.

Anahtar kelimeler: Konvülsiyon, İsoniazid, Zehirlenme

Introduction

Isoniazid (INH) is a bactericidal drug used in the treatment of tuberculosis. INH is increasingly being used to control the spread of tuberculosis, and physicians should be aware of its potentially fatal effects. INH overdose is known to result in the rapid onset of seizures, metabolic acidosis and prolonged obtundation (1). Severe central nervous toxicity can also be caused by chronic ingestion of higher than therapeutic doses of INH. In those cases pyridoxine therapy can also be useful (2). We report a case of obtundation secondary to INH overdose that was immediately reversed by pyridoxine.

Case

An 8-year-old male was admitted to our emergency department with a Glasgow Coma Scale of 8/15 having taken 10 tablets INH(1 tablet: 100mg). On admission to the emergency department his blood pressure was 110/70 mmHg and pulse was 110/min. He had spontaneous and regular respiration, the pupils were reactive to light bilaterally and 2 BCG scars were evident with a PPD of 16 mm. A nasogastric catheter was administered and gastric lavage was performed followed by the administration of activated charcoal. Immediately after the procedure, sudden convulsions began, which subsided within five minutes of the administration of diazepam infusion. As an antidote, Pyridoxine 1.5 gr (50 mg/kg/day), was administered intravenously. Serum glucose, urea, nitrogen, creatinine, creatine kinase, liver function tests and electrolyte values

were all within normal limits. His blood gas values were normal After 8 hours the patient regained consciousness, his general condition normalized and oral nutrition was started.

With the possibility of damage to the central nervous system from the intoxication, an electroencephalography (EEG) was taken and this showed base dysrhythmia, slow base activity for his age and focal epileptiform activity. To correct these findings the patient was started on antiepileptic drug. During the follow-up of one year no extra pathology was determined.

Discussion

Isoniazid is the most widely used of the antituberculosis drugs. If a high dose of isoniazid is taken acutely, even a dose as low as 1.5 gr can cause toxicity. A dose of 30 mg/kg or higher generally causes seizures. Acute isoniazid toxicity

presents clinically 30 minutes–2 hours after ingestion. Vomiting, rash, fever ataxia, disarticulation, peripheric neuritis, vertigo and stupor are common signs of poisoning, which are then followed by grand-mal seizures and coma. Seizures are particularly resistant to anticonvulsants and also to barbiturates (3). If not treated properly, respiratory depression and death eventually occur (4). An acute overdose of isoniazid results in absolute pyridoxine deficiency. Pyridoxine is an essential cofactor in synthesis of gamma amino butyric acid, which is the major inhibitory neurotransmitter in the central nervous system. Decreased levels of gamma amino butyric acid cause a lowered seizure threshold. Therefore, pyridoxine administration can specifically prevent the neurotoxicity related to isoniazid (4,2). Diazepam has been found to be more effective in the treatment of seizures related to isoniazid intoxication compared to phenytoin and barbiturates (5). The cornerstone of therapy is the administration of pyridoxine in a dose equivalent to that of the isoniazid ingested.

Ozmenoglu et.al. (6) reported that an overdose of isoniazid, as in attempted suicide or accidentally may result in uncontrollable convulsions. Turkmen et.al. (7) determined pyridoxine administration as the best way of treating convulsions and recovery from metabolic acidosis. Citak et.al. (1) reported two cases of obtundation secondary to INH overdose that was immediately reversed by pyridoxine. Parenteral pyridoxine administration is an effective method in INH intoxication. The intravenous form of pyridoxine must be available in emergency care units, and INH toxicity should be suspected in any patient with refractory seizures and metabolic acidosis.

Brown et.al. (8) determined that acute toxicity from ingestion of isoniazid is manifested by coma and seizures unresponsive to conventional therapy. Although small doses of pyridoxine can reverse the seizure activity of acute isoniazid toxicity, large doses of pyridoxine are needed to completely reverse the symptoms.

In our case, firstly gastric lavage was performed followed by the administration of activated charcoal. Immediately after the procedure, sudden convulsions began, which subsided within five minutes of the administration of diazepam infusion.

As an antidote, Pyridoxine 1.5 gr (50 mg/kg/day), was administered intravenously. After 8 hours the patient regained consciousness, his general

condition normalized and oral nutrition was started. As the electroencephalography showed an irregular rhythm, the patient continued treatment with epdantoin and was followed up.

Tuberculosis is widespread globally and INH is one of the most frequently used medications both in treatment and as a prophylactic. A toxic dose of INH will result in convulsions, which are resistant to antiepileptic treatment. Therefore, in conclusion, importance must be given in emergency units to the availability of pyridoxine and its administration as the first choice of treatment.

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