The Effect of Naloxone on Pentazocine Induced Hallucinations

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A Case Report

SUMMARY: A case of pentazocine induced hallucinations which responded to treatment with Naloxone is reported.

Introduction

Orr and Oppenheimer¹ and Gunne, Lundstrom and Terenius², have shown that auditory hallucinations can be abolished in schizophrenic patients by the administration of Naloxone (n-allyl-nor-oxy-morphone), a pure narcotic antagonist. Maugh³ has also reported that it abolishes the hallucinations produced by narcotic analgesics. The use of Naloxone to treat pentazocine induced hallucinations is detailed.

Case History

A 17 year old male was admitted with a fractured femur following a road traffic accident. It was decided to treat the broken bone by means of internal fixation with a Küntscher nail. He was a fit youth weighting 78 kg, with no past history of serious illness or psychiatric instability. He had not received any drug therapy in the previous six months, but had been started on ampicillin 250 mg/flucloxacillin 250 mg (Magnapen) intra-muscularly four times a day on admission.

Routine pre-operative preparation was instituted and the patient premedicated with pentazocine 60 mg and atropine 0.6 mg intramuscularly one hour before surgery. Anaesthesia was induced intravenously with thiopentone 400 mg and pancuronium 8 mg. The patient was intubated and ventilated with nitrous oxide, 30% oxygen, and halothane. Surgery was completed in 45 minutes, paralysis reversed with neostigmine 2.5 mg and atropine 1.2 mg, and the patient returned to the recovery ward. Pentazocine 60 mg intramuscularly was prescribed for pain relief.

About 45 minutes after receiving his first post-operative dose of pentazocine the patient was noticed to be behaving in a most bizarre manner. He was thrashing about in the bed, gasping for air, and sweating. Although rousable he was incoherent, and the nursing staff were unable to pacify him. One of the authors (JS) was called, and following rapid assessment of the situation gave Naloxone 0.4 mg intravenously.

Within two minutes the patient had calmed down and was rational. He said that he had been having a strange and frightening dream, but was unable to recount exact details of its content. Aware of the short duration of action of Naloxone, and consequently fearful of a return of symptoms, a further 0.4 mg was given intramuscularly. The patient was closely observed overnight, but suffered no further disturbance. Subsequent analgesia was provided by means of a femoral nerve block.

Discussion

Pentazocine is known to be associated with psychotomimetic side effects, the commonest of which are hallucinations⁴. This patient clearly suffered a severe disturbance, the most likely precipitating agent being the pentazocine used for post-operative analgesia. The rapid return of normal behaviour following intravenous Naloxone underlines the speed of action of this drug.

It has been suggested that the hallucinations associated with schizophrenia are caused by the interaction of excess naturally occurring endorphins and

brain opiate receptors². The mechanism involved in producing pentazocine induced psychotomimetic reactions is as yet unknown. Holtzman and Jewett⁵ reported a rapid fall in brain nor-adrenaline and dopamine levels following the administration of pentazocine, with no alteration in the turnover rates of neuro-transmitters. Similar rapid release of brain amines is seen with amphetamine therapy. Byrd and Kane⁶ suggested that pentazocine may interact with an underlying personality disorder or with pre-existing sub-clinical neuronal damage.

That narcotic antagonists block the euphoric effects of opiates has long intrigued investigators in the field of heroin addiction³. This case report confirms their observations, and may have important implications for the role of endorphins and opiate receptors in the pathogenesis of pentazocine induced hallucinations.

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