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Clinical Records

Cochleotoxicity due to Mianserin hydrochloride

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Abstract
A patient who developed bilateral tinnitus and symmetrical high frequency sensorineural hearing loss due to therapy with the anti-depressant Mianserin hydrochloride is presented together with a short review of available literature.

Introduction

Iatrogenic vestibulocochlear toxicity is a rare but serious complication of medical therapy. It is known to be more common amongst certain groups of drugs (*e.g.* aminoglycosides) and is often a dose-related phenomenon, however idiosyncratic cases also occur.

Case report

A 27-year-old male Greek-Cypriot student with no previous otological problems and previously normal hearing presented with a three year history of bilateral tinnitus. The tinnitus began immediately after he was prescribed Mianserin hydrochloride 20 mg twice daily for mild depression. The patient described a bilateral, constant, high-pitched singing noise which was worst at night. The symptom became worse over the ensuing months and in view of the development of a difficulty in understanding speech when in a noisy environment, he stopped taking the medication of his own accord, after two years. He had no previous medical history of note, no labyrinthine symptoms, took no other medications and did not smoke. There was no familial history of early deafness. Since stopping the Mianserin hydrochloride he has required no further anti-depressant therapy, but his tinnitus has persisted at the same level.

On examination, he was found to be a fit young man with no physical abnormalities. The tympanic membranes were normal in appearance, position and mobility. He was bilaterally Rinne positive and the Weber was not lateralized. There was no spontaneous nystagmus and all cranial nerves were normal. The rest of the ENT examination was unremarkable.

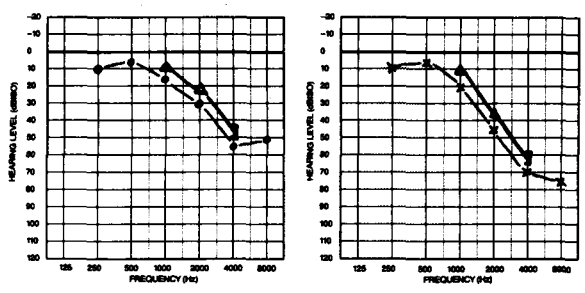

FIG. 1

Air and bone conduction pure tone audiogram showing a 10–70 dB high tone sensorineural hearing loss bilaterally.

Audiometry revealed a bilateral, almost symmetrical high frequency sensorineural hearing loss with a normal threshold to 1 kHz (Fig. 1). Tympanometry revealed normal compliance values and middle ear pressures. A full blood count, electrolytes, sedimentation rate and VDRL assays were all normal. Electronystagmography was normal, but permission to perform electrocochleography was refused.

Discussion

Mianserin hydrochloride is a tetracyclic antidepressant which is an alpha-adrenoceptor blocker causing an increased turnover of adrenalin in brain tissue. It has little effect on central serotonin uptake, but has been shown to increase peripheral uptake in depressed subjects. However, the actual mode of action in depression is not clear (Martindale, 1989).

In a recent comparative study by Naylor and Martin (1985), three out of 29 patients reported tinnitus as a side-effect in a double-blind trial. It is not specified whether it was reversible on withdrawal of therapy or whether it was associated with any hearing loss. Seppala *et al.* (1984) have also reported the occurrence of tinnitus as a side-effect in one of 13 healthy volunteers taking the drug. Again, association with hearing loss and reversibility on cessation of therapy is not documented, although the production of nystagmus when the medication was taken together with alcohol was noted. The Commission on Safety of Medicines lists eight reports of tinnitus occurring in patients treated on Mianserin, among other drugs, but these have not been documented and without details of concurrent therapy no comment can be made regarding these cases.

It may therefore be that ototoxic sequelae in patients using this medication may be underestimated. Clearly, tinnitus is a known side-effect of Mianserin hydrochloride but, this appears to be the first documented case of hearing loss associated with this drug. There is insufficient documentation on this aspect of an otherwise safe and widely-used sedative anti-depressant and more work will therefore be needed in this field, but prescribers of this drug should be aware of this potentially disabling side-effect; equally, otologists should add this drug to the already extensive list of potentially ototoxic medicines.

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