

### Tinnitus and musical hallucinations are positive not negative symptoms

Dear Sirs,

We thank Dr Gordon for his interest in our paper published in *The Journal of Laryngology & Otology*.

We are concerned, however, about several points that he makes.

Firstly, we and other authors referenced in our paper would contend that musical hallucinations and simple tinnitus are qualitatively different perceptual experiences.<sup>1</sup> Much of Dr Gordon's hypothesis of a cochlear origin of musical hallucinations depends fundamentally upon a conflation between the two phenomena, which we believe is an unproven theory.

Secondly, we have not described musical hallucinations as being a positive or negative psychiatric phenomenon, nor do we rely upon this as necessary for our hypothesis. The use of this language does not help in the understanding of the phenomenon, and we find Dr Gordon's allusion to positive and negative symptoms in schizophrenia to be irrelevant. We also find his position of not requiring '...concurrent psychiatric, psychological, otological, pharmacological, religious or mystical states' to be misrepresenting our systematic inquiry into associated neuropsychiatric disorders. Contemporary neuroscience would urge us to consider a unitary perceptual system, and we would argue that neuropsychiatric illness is a window into this system which should be seriously investigated. We made no reference to 'religious or mystical states'. The analogy of cave dwellers interpreting threatening environmental sounds as musical hallucinations is unsound, as by definition a hallucination occurs in the absence of external auditory stimulus. Dr Gordon is therefore describing an illusion.<sup>2</sup>

Thirdly, whilst it is always interesting to hear someone defend their own theories, those referred to by Dr Gordon have not gained popular acceptance and rely on a series of assumptions. It would be stretching credibility to believe that our patient or others all developed cochlear hyperactivity or had perilymph fistulae or some form of perilymphatic hypotension. There are few ENT surgeons or neurologists or judges in medico-legal cases who would accept that 98 per cent of patients who have lost consciousness develop cochlear or vestibular abnormalities, or that cochlear lesions, hydrops or perilymph fistulae are responsible for all post-concussional symptoms. It

seems more likely that Grimm and Dr Gordon are over-diagnosing cochlear pathology, rather than everyone else under-diagnosing it.

Fourthly, we have not suggested that cochlear dysfunction is not an important aspect in the pathophysiology of musical hallucinations, but we would suggest that, using Ockham's razor, peripheral hypofunction and central disinhibition is a simpler and more credible explanation than a 'Ménière's type condition' somehow being responsible for the perceptual complexity and clarity of musical hallucinations. We have cited several papers describing musical hallucinations in patients with acute central pathology. To suggest that most neurologists are incapable of considering or reporting a basic otological assessment seems unfair.

We suggest that without physicians undertaking multidisciplinary assessments of the neurological, otological and neuropsychiatric status of patients it would not be possible to more conclusively understand the basis of this fascinating condition. To maintain a solely otological basis for the condition to the exclusion of other possibilities would represent a misguided regression.

We regret referencing Dr Gordon's paper in a fashion that does not reflect his personal hypothesis. Several other references in our paper support the contention that auditory deprivation plays a fundamental role in the generation of musical hallucinations, and that the substrate for this experience is the central nervous system.<sup>3-6</sup> We could have reasonably removed Dr Gordon's referenced paper without loss of understanding of our hypothesis.

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#### References

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