BENZODIAZEPINES FOR PROMINENT AUDITORY HALLUCINATIONS: A REPORT AND HYPOTHESIS.

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A case is reported of diazepam-induced amelioration of prominent auditory hallucinations experienced by a female paranoid schizophrenic. With the assumption that subvocal speech may be primary to such hallucinations, it is proposed that diazepam may have acted by exerting a relaxant effect on speech musculature. This is a hypothesis testable in future research.

Key words: benzodiazepines, schizophrenia, hallucination.

In recent years, benzodiazepines have been found to be useful, either alone or as adjuncts to neuroleptics in the management of psychosis. The consensus of opinion seems to be that benzodiazepines hasten amelioration of agitated states and lower the neuroleptic requirement. The response is highly variable and about 30-50% of patients improve. Actual antipsychotic effects may be observed in some patients and higher doses (but not necessarily megadoses) are probably more effective (Bodkin, 1990; Wolkowitz & Pickar, 1991; Ananth & Solano, 1993). A case with prominent auditory hallucinations responding to diazepam is herein reported. Possible explanations for the response are discussed and a testable hypothesis is suggested.

CASE REPORT

From 1986, a male paranoid schizophrenic has been followed up regularly in the company of his 40 year old wife, Mrs. V. At one follow up in 1992, Mrs. V. reported that since a fortnight she had begun to hear voices at both office and home. The content of these hallucinations was in general derogatory and abusive - for example suggesting that she was an immoral woman.

The voices appeared for an hour or longer per occasion for several occasions a day. The voices were heard in clear consciousness and were located in objective space. Mrs. V. readily agreed that hearing such voices was abnormal and indicative of a psychiatric disorder, such as that from which her husband was suffering. There was no disturbance of thought, behavior or function outside her hallucinations; in fact, other than anxiety due to her symptom, Mrs. V. did not appear much different from what she had been over the past years.

There was no history to suggest an organic origin for the hallucinations. There was, however, a history of recent nonspecific stress both at work and at home, in addition to the existent stress of looking after a schizophrenic husband. Physical examination was unremarkable. There were no visible movements of orofacial or superficial laryngeal musculature (the patient was actively hallucinating during this presentation), nor did the patient complain of orofacial or throat movements or sensations during the hallucinatory episodes (such movements or sensations may be observed or reported by patients who experience continuous auditory hallucinations).

Reports from the Indian subcontinent have suggested that true hallucinations may present as a culturally sanctioned conversion symptom in non-psychotic states (Andrade & Srinath, 1986; Andrade et al., 1988 & 1989). In view of the stress, Mrs. V.'s excellent insight, the preservation of occupational functioning, the absence of other symptoms characteristic of psychosis, and the opportunity to 'learn' a symptom from her husband, a tentative diagnosis of Adjustment Disorder (with predominant disturbance of other emotions), ICD-9 309.2 was made. It was decided to maintain close contact with Mrs. V. so that immediate neuroleptic treatment could be instituted should it become necessary to revise the diagnosis to one of psychosis.

She was prescribed diazepam in the dose of 2.5 mg in the morning and 5 mg at night to relieve the manifest anxiety associated with her symptom. No more than reassurance was offered, with the commitment that a psychoeducational program for the disorder would be undertaken at a follow up appointment given for the next week. At the scheduled follow up, Mrs. V. reported a substantial decrease in the occurrence of hallucinations - the symptoms occurred on no more than two or three occasions a day for a few minutes each time. Diazepam was therefore continued for a further two weeks, over which period weekly contact was maintained. There was no further clinical improvement; however, towards the end of the third week of therapy, Mrs. V. began to exhibit new symptoms - the convictions...
of delusional proportions) that she could read minds, that she could project thoughts, and that her colleagues and neighbors were persecuting her. In addition, her sleep and appetite became disturbed and she was socially withdrawn. Her work performance began to suffer. A diagnosis of paranoid schizophrenia became inevitable.

Diazepam was withdrawn and neuroleptic therapy was immediately commenced. Mrs. V. showed a good response and today, two years later, she remains in reasonably good remission on neuroleptic maintenance medication.

**DISCUSSION**

Many mechanisms have been proposed for the response of psychosis to benzodiazepines. One is that benzodiazepines nonspecifically reduce arousal, therapy decreasing anxiety, agitation, excitement and related symptoms associated with psychosis (Ananth & Solano, 1993). Although Mrs. V. was anxious at initial presentation, the degree of anxiety was not marked. Furthermore, there was no history of precipitation of anxiety symptoms or heightening of existing anxiety immediately preceding each hallucinatory episode. It seems unlikely that merely reduction in her anxiety could have induced such a striking lessening of the hallucinatory experiences.

Another mechanism proposed is that benzodiazepines inhibit dopaminergic neurotransmission either directly or through activation of the benzodiazepine / GABA receptor complex. This may explain the response of core psychotic symptoms (such as Mrs. V.'s hallucinations) to diazepam. The mechanisms of action of benzodiazepines in psychosis have been well reviewed by Wolkowitz and Pickar (1991).

A third explanation is also possible. It has been hypothesized that auditory hallucinations result from subvocal speech (detectable in electromyographic records from orofacial and laryngeal musculature). Interventions that interfere with subvocalizations reduce auditory hallucinations (Bick & Kinsbourne, 1987; Green & Kinsbourne, 1990). Diazepam is a potent muscle relaxant and by virtue of this property, may reduce subvocal activity. This effect could explain the dramatic reduction of hallucinations experienced by Mrs. V. following the onset of diazepam therapy. Another recent report (Banes et al, 1993) has also documented a dramatic response of schizophrenic auditory hallucinations to a benzodiazepine (etizolam).

The proposal that benzodiazepines induce reduction of electromyographic activity in orofacial and laryngeal musculature, which in turn leads to a reduction in the frequency of auditory hallucinations, is an eminently testable hypothesis. Should this hypothesis be borne out, benzodiazepines for prominent auditory hallucinations may prove viable - possibly more so than behavior therapy techniques that seek to interrupt subvocal speech.

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