BRIEF REPORTS

Olfactory Identification Ability in Patients with Panic Disorder

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Deficits in olfactory identification ability have been reported in some groups of psychiatric patients, but not others. Our study examined olfactory identification ability in patients with panic disorder. Results indicate that this ability is intact in this population and, further, that psychotropic medications appear not to interfere with olfaction.

Key Words: olfaction, olfactory pathways, panic disorder, schizophrenia

INTRODUCTION

Olfactory identification deficits have been reported for patients with a number of psychiatric and neurodegenerative disorders, including schizophrenia (Seidman and others 1992; Kopala and others 1994), Alzheimer's, Parkinson's, and Huntington's diseases (Doty 1991), but have not been observed in depression, eating disorders, or bipolar illness (Hurwitz and others 1988; Warner and others 1990; Kopala and others 1994). Hippocampal, medial-temporal, and frontal-cortical regions have been found to be abnormal in a variety of neuroimaging studies of patients with panic disorder (Fontaine and others 1990; Nordahl and others 1990; DeCristofaro and others 1993). These regions are involved in normal olfactory function and have been consistently reported to be abnormal in patients with schizophrenia (Nasrallah 1993).

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One prior study (Locatelli and others 1993) describes abnormal electroencephalographic patterns from temporal lobes of patients with panic disorder during an odor activation condition, but to date no investigators have examined olfactory function in this patient group. Therefore, we assessed olfactory identification ability in patients with panic disorder.

METHODS

Ten clinically stable, medicated outpatients (7 female and 3 male) who met DSM-III-R and DSM-IV criteria for a diagnosis of panic disorder, along with an equal number of normal controls who were matched for both age and sex, participated in the study. Diagnosis was completed independently by 2 psychiatrists (LK and SS). Global assessment of function (DSM-III-R Axis V [American Psychiatric Association 1987]) scores were also recorded (mean = 64.0, SD = 6.7, range 48.3 to 72.5) and indicated that, on average, patients had mild to moderate symptoms. None had any other

Axis I diagnoses, and all were physically well. All patients were medicated with benzodiazepines and/or antidepressants (alprazolam, clonazepam, clomipramine, and, in 1 case, maprotiline). Exclusion criteria for cases included substance abuse, head injury, facial trauma, allergic rhinitis, or any other medical condition that would interfere with normal olfactory ability (for example, hypothyroidism). Normal control subjects met the same exclusion criteria. Additionally, no control subject had a diagnosis of panic disorder or a family history of psychotic illness.

Olfactory identification ability was assessed by administering the University of Pennsylvania Smell Identification Test (UPSIT) (Doty and others 1984), using methods that have been described in detail elsewhere (Kopala and others 1992, 1994).

RESULTS

Using a *t* test, we found no difference in mean age between patients and normal control subjects (30.7 versus 30.7 years; t (18) = 0.00, P = not significant). For UPSIT score, no difference was found between the groups (panic: mean UPSIT = 37.9, SD = 2.64, range 31 to 40; control: mean UPSIT = 38.0, SD = 1.4, range 36 to 40; t (18) = −0.11, P = not significant). Both groups would be classified as normosmic according to standardization data (Doty and others 1984).

DISCUSSION

Patients with panic disorder performed comparably to age-matched control subjects on the UPSIT. This finding is similar to previous reports of patients with psychiatric illnesses such as depression, bipolar disorder, and eating disorders, who also demonstrated intact olfactory identification ability. The results contrast those of a subgroup of patients with schizophrenia who have olfactory identification deficits, however, and imply a degree of specificity. Although brain-imaging evidence suggests abnormalities in olfactory-related regions in both panic disorder and schizophrenia, the present functional study indicates that the processes involved likely differ between the 2 disorders. The abnormalities in schizophrenia could be more like those observed in neurodegenerative disorders such as Alzheimer's, Parkinson's, and Huntington's diseases. In these disorders, like schizophrenia, olfactory identification deficits are present early in the course of illness (Doty 1991; Kopala and others 1992).

It is unlikely that low power due to small sample size was responsible for the null finding in this study. Although the range of UPSIT scores for the panic disorder group was larger than for the normal control group (31 to 40 versus 36 to 40), only 1 patient with panic disorder was microsmic (31/40). This score was responsible for the larger standard deviation in this group. The mean scores for the 2 groups were virtually identical, even with the statistical outlier, suggesting that olfactory scores did not differ between the 2 groups.

These data support previous findings indicating that psychotropic medications, such as antipsychotics, anxiolytics, and antidepressants, appear not to interfere with olfactory identification ability in patients with psychiatric illness (Kopala and others 1992, 1994). Whether medications taken by the individuals with panic disorder in any way "normalized" their olfactory ability remains uncertain. For patients with schizophrenia whose olfactory abilities were tested in the drug-naive state and then retested after a minimum of 6 months of antipsychotic treatment, olfactory scores remained stable (Good and others, unpublished observations). This finding suggests that olfactory function in schizophrenia may be a stable marker of brain dysfunction which is not affected by psychotropic medications or other state-dependent factors. Only by examining olfactory status in individuals with panic disorder when they initially present for treatment can this issue be further explored.

Examining olfactory function in patients with neuropsychiatric disorders could serve as a noninvasive, complementary strategy for assessing the functional integrity of specific brain regions.

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