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Minnesota multiphasic personality inventory profile of patients with chronic sinusitis*

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SUMMARY

Chronic sinusitis is one of the most common diseases in the general population. We investigated the personality traits of non-psychiatric patients in chronic sinusitis and non-sinusitis groups. In this study we evaluated 25 patients with chronic sinusitis and 25 subjects as a control group. In the analysis of the psychiatric status, MMPI profiles were used. We found that the depression and social introversion subscales were higher in males, whereas the hypochondriasis and social introversion subscales were higher in females with chronic sinusitis. It is concluded that the psychological functions of the patients with chronic sinusitis are poorer than in the non-sinusitic group.

Key words: chronic sinusitis, MMPI

INTRODUCTION

When a patient has long lasting suppuration and duration of sinusitis symptoms longer than 6 to 12 weeks after the acute stages of a sinus infection, it is considered as chronic sinusitis (Johnson, 1993). Anaerobic bacteria are the etiological factor in chronic sinusitis and the most common of them are *Veillonella sp., Peptococcus sp.* and *Corynebacterium* (Frederick and Braude, 1974; Karma et al., 1979; Su et al., 1983; Johnson, 1993).

Benninger and Senior (1997) developed a Rhinosinusitis Disability Index (RSDI), a disease-specific, self-reported, outcomes measurement tool. In their research, they used this index in 87 patients with rhinosinusitis. Thirty-seven were male and 50 were female. The responses were scored on a scale of 0 (never) through 4 (always). In the control group, they gave RSDI to 44 patients with no history or previous diagnosis of nasal or sinus trouble. Twenty controls were male and 24 were female. In conclusion, the RSDI was found to be valid and reliable, and can distinguish between persons with and without rhinosinusitis. In our country, the use of RSDI is not valid because there is no standardization about this scale in Turkey.

In the present study, we aim to investigate the psychological effects of chronic sinusitis by using MMPI (Minnesota Multiphasic Personality Inventory). Since the standardization of the scale of MMPI in the Turkish population has been reported by Savasir (1981) and MMPI has Turkish norms for normal, medical and psychiatric patients, the MMPI was chosen to assess the personality traits of the patients. We could not find any similar study on this matter in the literature.

MATERIALS AND METHODS

Subjects

The chronic sinusitis group was selected from the patients examined in the Otolaryngology Department of Kirikkale University, Faculty of Medicine. This study group consisted of 25 patients who were non-psychiatric. Ten of the patients were male and 15 were female. All patients were examined; Water's graphy and in some cases computerized tomography of paranasal sinuses were taken. Patients with 3 mm and higher mucosal thickness in X-ray and symptoms, which had the duration of 3 months or longer were included in the study as the chronic sinusitis group.

The control group consisted of 25 patients (10 male and 15 female) who were non-sinusitic and non-psychiatric, healthy subjects. They were selected from the people working in the Kirikkale University Hospital. Also their wives, husbands and students of the Kirikkale University, Faculty of Medicine accepted to enter the study. They were examined and taken into the control group.

Instrumentation

Minnesota Multiphasic Personality Inventory (MMPI)

The Minnesota Multiphasic Personality Inventory is currently the most widely used and researched objective personality test. Originally devised by Hathaway and McKinley in 1940, the MMPI provides an objective means of assessing abnormal behavior. A person taking the MMPI sorts 556 statements into one of the three categories: "true", "false" or "cannot say". The person's responses to these statements are scored on 10 clinical

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scales [Hypochondriasis (Hs), Depression (D), Hysteria (Hy), Psychopathic deviate (Pd), Masculinity Feminity (Mf), Paranoia (Pa), Psychastenia (Pt), Schizophrenia (Sc), Hypomania (Ma), Social Introversion (Si)] that assess major categories of abnormal behavior. In addition 4 validity scales [Question (?), Lie (L), Frequency (F), Correction (K)] was used to assess the person's test taking attitudes. Overall, a standard profile sheet is used for plotting the person's scores on these 14 scales. The Turkish form of the test is used in our study (Savasir, 1981).

Procedure

After physical examination, the Turkish version of the MMPI was given individually to all patients with chronic sinusitis. The non sinusitis group was also evaluated and they completed the MMPI.

Scoring

K-corrected raw scores were obtained for the 14 MMPI scales (4 validity, 10 clinical scales) and converted to T scores as described in Savasir (Savasir, 1981) and Erol's (Erol, 1982) manual. Validity scales included: Question (?), Lie (L), Frequency (F), Correction (K). Clinical scales included: Hypochondriasis (Hs), Depression (D), Hysteria (Hy), Psychopathic deviate (Pd), Masculinity Feminity (Mf), Paranoia (Pa), Psychastenia (Pt), Schizophrenia (Sc), Hypomania (Ma), Social Introversion (Si).

Statistical analysis

Statistical packet for SPSS (Version 9.0) was used for statistical evaluation. "Students t test" was used for analysis and a p value < 0.05 was considered statistically significant.

RESULTS

The demographic characteristics of the groups are given in Table 1. The mean age of the sinusitis group for male and female patients was 37.50 and 32.53 respectively. In the patients with chronic sinusitis, male subjects are high school educated, married and public officer; female subjects are high school educated, married and housewife. The mean age of non-sinusitis group for male is 29.00, they are university educated, married and public officer. The mean age for female group is 29.40, they are university educated, married and housewife. The results of the MMPI are seen in Table 2.

In Figures 1 and 2, MMPI profiles of the male and female groups is given. As seen in Figure 1, the hysteria, depression and social introversion subscales are higher in the sinusitis group. The highest subscale scores are in the 60 - 65 T score range. The differences between the means are statistically significant in depression ($t=3.69$, $p<0.001$) and social introversion ($t=3.17$, $p<0.05$) subscales. This 20/02 high point pairs often show mild but chronic levels of depression in conjunction with their socially introverted features. They usually display feelings of inadequacy, shyness and isolation in social settings.

As seen in Figure 2, hypochondriasis (Hs), depression (D), hysteria (Hy), psychopathic deviate (Pd), masculinity feminity (Mf), subscales are higher in the sinusitis female group. The highest subscale scores are in the 60 - 65 T score range. The differences between the means are statistically significant in the hypocondriasis ($t=3.88$, $p<0.001$) and social introversion ($t=2.80$, $p<0.05$) subscales. Patients with 12/21 high points pairs present themselves as concerned about their physical functioning.

Table 1. Demographic characteristics.

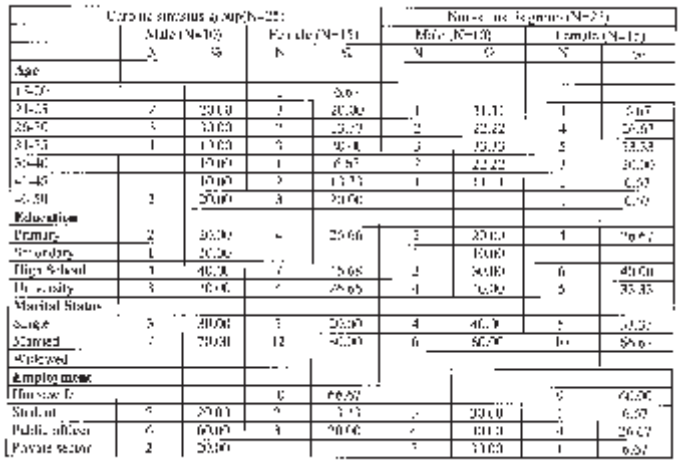
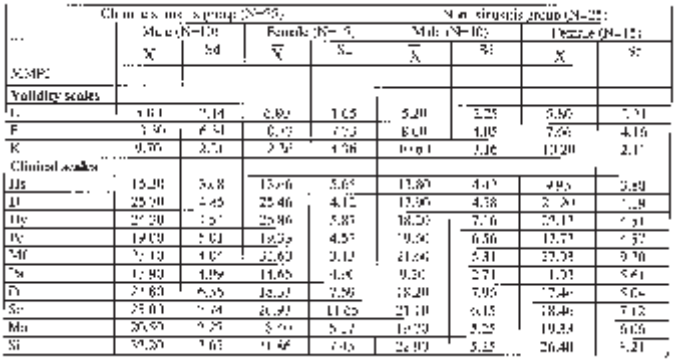


Table 2. MMPI Findings in the groups.



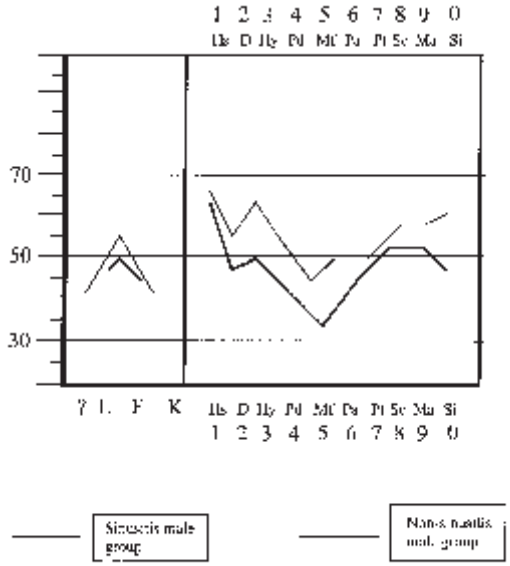
DISCUSSION

Sinusitis is one of the most common chronic diseases in the general population (Hamilos, 2000). About 0.5 % of common cold cases are estimated to progress to sinusitis. Abnormal X-rays of the sinuses are seen in 8 % of asymptomatic people (White, 1991). Chronicity of the sinusitis depends on anatomic factors, microbial pathogens, impaired mucociliary clearance and inflammatory factors. Chronic sinusitis has infectious and noninfectious types (Hamilos, 2000).

Diagnosis of the chronic paranasal sinus infection is not too difficult. There are multiple imaging techniques including conventional X-ray, ultrasound, computed tomography (CT) and magnetic resonance imaging. Spiral CT allows transverse and coronal orientation (Vogl et al., 2000). In our study, we used conventional X-ray and CT.

Symptoms of the chronic sinusitis are less severe than acute sinusitis. Intractable pain or fever is rarely seen only if acute exacerbation occurs. Headache is a common complaint. Localization of headache differs according to the involvement of different sinuses (White, 1991). Hamilton et al. (1980) studied

Figure 1. MMPI profile of male groups.



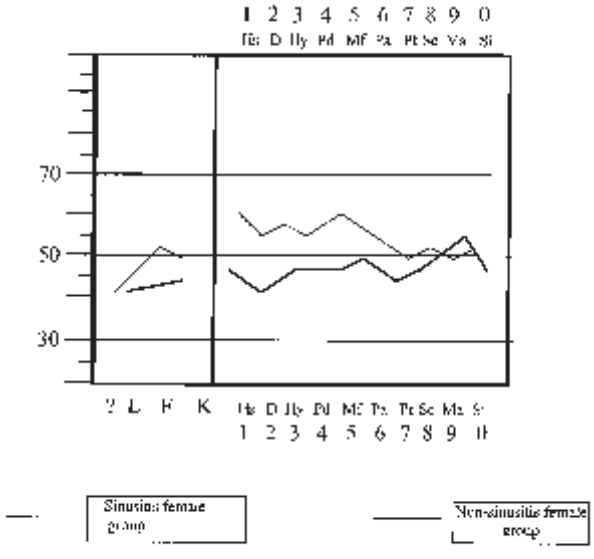
*K correction is included in Figure 1.

about the psychophysiological causes of sinus headache. Nasal obstruction is another symptom and is usually seen when polyp formation occurs due to the chronic sinusitis. Mucoceles and pyoceles may occur and can cause bone erosion (White, 1991). Chronic sinusitis is a long-lasting disease. Chronic symptoms can disturb the patients and may cause psychological problems. From this point of view, we wanted to investigate how we can test this hypothesis.

In the present study, hysteria, depression and social introversion subscales were higher in the chronic sinusitis male group. Depression was associated with social introversion. The patients usually displayed feelings of inadequacy, shyness and isolation in social settings. The hypochondriasis, depression, hysteria, psychopathic deviate, masculinity feminity subscales were higher in the chronic sinusitis female group. In the same group, hypochondriasis and social introversion subscales were statistically significant compared to the non-sinusitis female group. General hypochondriacal complaints were seen with manifestations of a somatization or psychophysiological reaction. Even when or if they had real physical symptoms, patients were found to exaggerate their severity.

Chronic sinusitis may cause more psychological problems. The effect of chronic sinusitis on the psychological status of the patients hasn't been studied thoroughly. As our study groups were limited, because the hospital of the university began to work in a new building and this study was done in the new area for only three months. We are planning to make future controlled studies in larger patient groups.

Figure 2. MMPI profile of female groups.



* K correction is included in the profile.

REFERENCES

1. Benninger MS and Senior BA (1997) The development of the Rhinosinusitis Disability Index. Arch Otolaryngol Head Neck Surg 123: 1175-1179.
2. Erol N (1982) Ulkemizde psikiyatrik hastalarda Minnesota Cok Yönlü Kisilik Envanterinin geçerlik arastirmasi. Doktora Tezi, A.U. DTCF Psikoloji Kursusu.
3. Frederick J, Braude LA (1974) Anaerobic infection of the paranasal sinuses. N Engl J Med 200: 135-137.
4. Hamilos DL (2000) Chronic sinusitis. J Allergy Clin Immunol. 106: 213-227.
5. Hamilton JG Jr, Haynes SN, Gannon L, Safranek RA (1980) Sinus headache: apsychophysiological study. Headache 20: 258-260.
6. Hathaway SR and McKinley JC (1940) A multiphasic personality schedule (Minnesota).I. Construction of the Schedule. J Psychol. 10: 249-254.
7. Johnson JT (1993) Infections. In: Cummings CW et al. (Eds.) Otolaryngology-Head and Neck Surgery, vol. 1, 2nd ed. Mosby Year Book, St. Louis, 929-940.
8. Karma P, Jokipii L, Sipila P, Luotonen J, Jokipii AM (1979) Bacteria in chronic maxillary sinusitis. Arch Otolaryngol. 105: 386-390.
9. Savasir I (1981) Minnesota Çok Yönlü Kisilik Envanteri El Kitabi. Sevinc Matbaasi, Ankara.
10. Su WY, Liu C, Hung SY, Tsai WF (1983) Bacteriological study of chronic maxillary sinusitis. Laryngoscope 93: 931-934.
11. Vogl TJ, Mach MG, Balzer J (2000) Chronic infections of paranasal sinuses. Radiologe 40: 500-506.
12. White JA (1991) Paranasal sinus infections. In: Ballenger JJ ed. Diseases of the Nose, Throat, Ear, Head & Neck, fourteenth edition. Lea & Febiger, Philadelphia, 184-202.

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