

ORIGINAL PAPERS

Adv Clin Exp Med 2009, 18, 6, 585–588
ISSN 1230-025X

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Evaluation of the Condition of the Larynx in Smokers with Schizophrenia*

Ocena stanu krtani u palaczy chorujących na schizofrenię

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Abstract

Background. Lower rates of cancer in schizophrenic patients than in the rest of population have been reported for almost a century. Results from studies of cancer rates in patients with schizophrenia are highly diverse.

Objectives. The purpose of this study was to analyze and appraise the evidence concerning the relationship between explicitly nicotine-dependent laryngeal lesions and schizophrenia.

Material and Methods. Endoscopic examination was conducted in 60 patients with a diagnosis of schizophrenia according to the International Classification of Diseases 10th revision (F 20, F 25) who smoked at least 20 cigarettes a day for at least 10 years and were hospitalized in the Clinic of Psychiatry of Wrocław Medical University.

Results. The results were compared with those of a population of adult smokers without mental disorders.

Conclusions. The presence of vocal cord atrophy was found more often in the group of schizophrenic patients (Adv Clin Exp Med 2009, 18, 6, 585–588).

Key words: laryngeal cancer schizophrenia cigarette smoking, vocal cord atrophy, VCA.

Streszczenie

Wprowadzenie. Od wielu lat uważa się, że mimo palenia dużej liczby papierosów, osoby z rozpoznanymi zaburzeniami psychicznymi, głównie schizofrenią, rzadziej niż inni zapadają na choroby nowotworowe. Wyniki badań przeprowadzonych nad częstością raka u pacjentów ze schizofrenią są niejednoznaczne.

Cel pracy. Analiza związku między jednoznacznie tytoniozależnymi zmianami w obrębie krtani i schizofrenią.

Material i metody. Autorzy podjęli próbę zbadania z użyciem metody endoskopowej krtani 60 pacjentów palących od co najmniej 10 lat ponad 20 papierosów w ciągu doby ze stwierdzonymi zaburzeniami psychicznymi, głównie z grupy F 20–F 29 wg ICD-10, leczonych w Klinice Psychiatrii Akademii Medycznej we Wrocławiu.

Wyniki. Uzyskane wyniki porównano z grupą dorosłych palaczy, u których nie stwierdzono choroby psychicznej.

Wnioski. Stwierdzono częstszą obecność niedowładu strun głosowych u pacjentów chorych na schizofrenię (Adv Clin Exp Med 2009, 18, 6, 585–588).

Słowa kluczowe: rak krtani, schizofrenia, palenie tytoniu, niedowład strun głosowych.

Lower rates of cancer in schizophrenic patients than in the rest of population have been reported for almost a century. The results of studies of cancer rates in patients with schizophrenia diverge greatly, some reporting increased rates of

cancer in patients compared with the general population [1, 2], and others showing no such increase [3–5]. However, there are some that report reduced incidence of cancer in patients with schizophrenia [6]. These findings are notable because of

* The study was supported financially by grant no. 999 from a reserve of the Wrocław Medical University for own research in 2003–2004. The statistical analysis was provided by Daniel Kowalski.

these patients' higher level of exposure to cancer risk factors. Patients with schizophrenia are commonly associated with risk factors such as cigarettes smoking, high alcohol consumption, poor diet, and lack of exercise compared with the general population. Patients with schizophrenia may use nicotine to reduce cognitive deficits and negative symptoms or neuroleptic side effects [7]. In Poland, psychiatric hospitals are the only public places (besides jails) where cigarette smoking is allowed.

The purpose of this study was to analyze and appraise the evidence concerning the relationship between explicitly nicotine-dependent laryngeal lesions and schizophrenia. Endoscopic examination of patients with a diagnosis of schizophrenia according to the International Classification of Diseases, 10th revision (F 20, F 25) who smoked at least 20 cigarettes a day for at least 10 years was conducted. The results were compared with those of a population of adult smokers without mental disorders.

Material and Methods

Sixty patients of the Clinic of Psychiatry of the Wrocław Medical University (23 women and 37 men, medium age: 53 years, range: 36-76 years) were qualified for the study. The medium number of smoked cigarettes was 23/day (range: 20-60)

and medium period of smoking was 28.5 years (range: 10–50 years). Endoscopic examination of the larynx was performed in all subjects. A Karl Storz endoscope set (endoscope 70 degrees, Telecam DX II camera with halogen light source) was used. Video sequences were recorded for subsequent analysis. Three men could not be examined because of problems with cooperation. The control group was 260 patients without mental disorders who smoked at least 20 cigarettes a day for at least 10 years.

Results

Results of endoscopic examination are presented in Table 1.

Statistical analysis was performed with use of Student's *t* test. Differences in the particular diagnoses in the two groups (patients and controls) were not statistically significant except for vocal cord atrophy, which was more frequent in the group of schizophrenic patients than in the control group ($p = 0.0287$).

Discussion

Clinically chronic laryngitis, besides leukoplakia, is a squamous intraepithelial lesion (SIL) of the larynx [8, 9]. SILs are caused by smoking and

Table 1. Endoscopic results of the condition of the larynx in the patients with schizophrenia

Tabela 1. Badanie stanu krtani pacjentów ze schizofrenią

Diagnosis (Rozpoznanie)	Male patients (Mężczyźni)	Female patients (Kobiety)	All patients (Łącznie)	Control group (Grupa kontrolna)
Normal mucosa (Bez odchyleń od normy)	1	2	3	8
Supraglottic cyst (Torbiel nagłośni)	2	0	2	5
Vocal cord atrophy (VCA) (Niedowład/atrofia strun głosowych)	4	1	5	7
Chronic laryngitis (Przewlekłe zapalenie krtani)	22	14	36	163
Leukoplakia (Leukoplakia)	1	0	1	4
Reinke's edema (Obrzęki Reinkego)	1	6	7	58
Laryngeal polyp (Polip krtani)	2	0	2	8
Tumor of the larynx (Guz krtani)	1	0	1	7
Total (Łącznie)	34	23	57	260

alcohol abuse. One of the most important concerns of SILs is the risk of malignant transformation [10]. The transition from normal epithelium to an SIL and squamous cell carcinoma is related to the progressive accumulation of genetic changes leading to a clonal population of transformed epithelial cells [11, 12]. In the present study the occurrence of SILs in the schizophrenic patients was the same as in the control group.

Teunis et al. report a lower rate of cancer in patients with schizophrenia with a hyperreactive dopaminergic system. To test whether individual differences in reactivity of the dopaminergic system are coupled to individual differences in cancer progression, they analyzed tumor growth and angiogenesis in two types of rats that differed in the reactivity of the dopaminergic system. Rats with high dopaminergic reactivity (APO-SUS) share characteristics with patients who suffer from schizophrenia. The reduced angiogenic response and the associated reduction in tumor growth or metastasis formation in APO-SUS rats suggest that these rats are a valuable tool in the search for the contribution of genetic and environmental stimuli to the apparent protection of patients with schizophrenia against cancer [13].

In a study by Torrey, the incidence of prostate cancer in men with schizophrenia was between one half and three quarters of what was expected [14], and several possible hypothesis were presented to explain this decreased incidence, i.e. the ef-

fect of antipsychotic medications, genetic factors, and lifestyle differences. Antitumor effects of chlorpromazine and other antipsychotic agents in cell culture and mouse models have been observed [15–17]. These antitumor effects may be “related to the modulation by antipsychotic drugs of Cytochrome P450 enzymes involved in mutagen activation and also elimination.” [18]. Genetic factors have also been proposed to explain the decreased incidence of cancer in individuals with schizophrenia. Park et al. cited differences in *p53* gene polymorphisms to account for the low rate of lung cancer in individuals with schizophrenia. Also supportive of a genetic theory was a Finnish study by Lichtermann et al. that assessed the incidence of cancer among the nonpsychotic siblings of individuals with schizophrenia. These siblings had decreased cancer incidence for all sites (886 observed, 999 expected), including the prostate (9 observed, 15.8 expected) [19].

As many patients with schizophrenia are known to have poor diets, exercise little, abuse alcohol and drugs, and have associated medical problems, it might be expected that they would have an increased, not a decreased, risk of cancer.

Vocal cord atrophy (VCA) was found more frequently in the group of schizophrenic patients. This could be explained by laryngeal dystonia, which was reported to be induced by antipsychotics [20, 21]. Except for VCA, no differences were found in laryngeal lesions in the two groups.

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Conflict of interest: None declared

Received: 14.08.2009

Revised: 8.10.2009

Accepted: 1.12.2009