

## **Rozprawa Doktorska**

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**Streszczenie w języku angielskim**

### ***Clinical-epidemiological analysis of salivary gland pathologies in the Polish population***

#### **Introduction**

Pathologies of the salivary glands are a diverse group of diseases with a variety of clinical and pathomorphological presentations. This diversity poses diagnostic and therapeutic challenge. The development of research methods, especially at the molecular level, allows the discovery of new subtypes of known pathologies, and the correct classification of a patient's disease is crucial for the choice of treatment and determination of prognosis.

Patient prognosis is also influenced by demographic, clinical and pathological factors. In this project, clinical and epidemiological data of patients with salivary gland pathologies from all over Poland reported to the National Health Fund (NHF) and the National Cancer Registry (NCR) were analyzed.

The aim of the study was the comprehensive analysis of the epidemiology, demographic and clinical characteristics, including the advancement of salivary gland diseases, methods of their treatment and the impact of these factors on the prognosis in the Polish population in recent decades. The performed comparisons were confronted with changes in the classifications of salivary gland pathologies and their evolution over the last 50 years.

#### **Manuscript 1**

*Żurek, M., Rzepakowska, A., Jasak, K., & Niemczyk, K. (2021). The Epidemiology of Salivary Glands Pathologies in Adult Population over 10 Years in Poland-Cohort Study. International journal of environmental research and public health, 19(1), 179. <https://doi.org/10.3390/ijerph19010179>*

The article comprehensively presents the epidemiology of salivary gland pathologies among adult patients in Poland over a decade. For this purpose, a retrospective analysis of salivary

gland pathologies diagnosed in Poland in 2010-2019 was carried out on the basis of the National Health Fund (NHF) database. Pathologies were divided into three main groups: non-cancerous diseases (including inflammatory), benign neoplasms and malignant neoplasms. Individual diagnoses were identified using International Statistical Classification of Diseases and Health Problems ICD-10 (ICD-10) codes. Incidence and morbidity rates, patient demographics and the number of inpatient and outpatient services were analyzed. During the study period, salivary gland pathologies were diagnosed in 230,589 patients (85.5% were non-cancerous lesions, 11.53% benign and 2.93% malignant). The incidence of all pathologies was 59.94 patients / 100,000 adult Polish residents. The average incidence for malignant neoplasms was 1.78/100,000 and a decrease in incidence was observed during the analyzed period. On the other hand, for benign neoplasms (average incidence - 6.91/100,000) there was an annual increase in the new number of cases. The incidence of non-cancerous lesions was fairly stable (average: 51.25/100,000) during the analyzed period. The largest number of medical services per patient was provided for malignant tumors (an average of two hospital stays and eleven outpatient visits). In addition, the number of medical services related to salivary gland pathologies increased during the period under review.

## **Manuscript 2**

*Żurek, M., Jasak, K., Jaros, K., Daniel, P., Niemczyk, K., & Rzepakowska, A. (2022). Clinico-Epidemiological Analysis of Most Prevalent Parotid Gland Carcinomas in Poland over a 20-Year Period. International journal of environmental research and public health, 19(16), 10247. <https://doi.org/10.3390/ijerph191610247>*

The above paper presents the results of a comprehensive analysis of the six most common malignant tumors of the parotid glands in Poland. The following types of malignant neoplasms were selected for analysis: mucoepidermoid carcinoma, adenoid cystic carcinoma, acinic cell carcinoma, adenocarcinoma, carcinoma ex pleomorphic adenoma and squamous cell carcinoma. The analysis included 2,318 patients with malignant parotid gland tumors reported to the National Cancer Registry (NCR) in Poland over a 20-year period (1999-2018). Patients' demographic characteristics, clinical factors and overall survival were analyzed. The mean age of patients was 61.33±16.1 years. The majority were men (55%) and urban residents (64%). The most common diagnoses were squamous cell carcinoma (33.3%) and adenocarcinoma (19.6%). The most common treatment was surgical resection with adjuvant radiotherapy

(42.1%). The median survival time from diagnosis was 5.6 years. The most favorable median overall survival was found for patients with acinic cell carcinoma (18.30 years), and the worst for squamous cell carcinoma (1.58 years). The average survival time of patients from the Polish population turned out to be shorter compared to data from other countries. In the summary of the work, attention was drawn to an important aspect of improving diagnostic methods and the need to verify the standards of treatment of malignant tumors of the parotid gland in Poland in order to improve patient prognosis.

### **Manuscript 3**

*Żurek, M., Fus, Ł., Niemczyk, K., & Rzepakowska, A. (2023). Salivary gland pathologies: evolution in classification and association with unique genetic alterations. European archives of oto-rhino-laryngology : official journal of the European Federation of Oto-Rhino-Laryngological Societies (EUFOS) : affiliated with the German Society for Oto-Rhino-Laryngology - Head and Neck Surgery, 280(11), 4739–4750. <https://doi.org/10.1007/s00405-023-08110-w>*

This review presents the current classification of salivary gland pathologies according to the World Health Organization (WHO) Classification (5th edition) and its evolution since 1972. With the development of new diagnostic methods based on genetic alterations, the latest classification provides insight into the molecular bases of pathologies. This has led to the evolution of diagnoses, especially within the malignant pathologies, the introduction of new entities and the reclassification of existing ones. In the future, genetic alterations will become increasingly important in identifying salivary gland pathology. They are also likely to gain prominence as prognostic and predictive biomarkers, and could serve as targets for anti-cancer therapies.

### **Summary**

Pathologies of the salivary glands are a diverse group of diseases with different epidemiology and clinical characteristics. In Poland, non-cancerous lesions are most often diagnosed, but it should be noted that a substantial increase of benign salivary gland lesions was observed in the recent decade. Malignant neoplasms, although rare, require the greatest number of medical services, and the prognosis depends on many factors, mainly the histopathological diagnosis.

The most common histopathological diagnoses are squamous cell carcinoma and adenocarcinoma. The best prognosis is for acinic cell carcinoma and the worst for squamous cell carcinoma. It should be noted that thanks to the evolution of the classification of lesions, it is increasingly possible to determine a patient's prognosis and propose optimal treatment. The latest World Health Organization Cancer Classification from 2022 has introduced many changes in the diagnosis of salivary gland pathologies, mainly based on the latest genetic discoveries.