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APPLICATION OF ARTIFICIAL INTELLIGENCE DIAGNOCAT IN DIAGNOSTICS OF MAXILLARY SINUSITIS

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Context. Nowadays using artificial intelligence DIAGNOCAT helps dentists for faster and objective quality control mechanism for diagnostics and treatment. DIAGNOCAT acts as a physician's assistant in the analysis of CBCT and guaranteed high quality of diagnostics. The use of CBCT recently became a routine research, but acceleration of this technique and simplification and assessment of visualization program causes significant difficulties, however DIAGNOCAT report is clear and understandable for patients and doctors.

Aim: the aim of the study is to obtain efficiency of maxillary sinusitis diagnostics using artificial intelligence DIAGNOCAT.

Materials and Methods. To conduct the study there were used 50 CBCTs of the patients with maxillary sinusitis using artificial intelligence DIAGNOCAT at the departments of Otorhinolaryngology and Maxillofacial surgery-1, Maxillofacial surgery-2 (11-State Clinical Hospital). Furthermore, all CBCTs were analyzed to identify the causative tooth in the development of maxillary sinusitis using the artificial intelligence program DIAGNOCAT independently and it generated a report on the endodontic status of the tooth, the variability of the anatomy of the root canals, as well as the volume of periapical lesions of the causative tooth.

Results. We have obtained the importance of using modern technologies as a new reality of diagnostics of maxillary sinusitis and the necessity of use of artificial intelligence DIAGNOCAT to increase the effectiveness of the diagnostic process of maxillary sinusitis in order to train specialists. As a result, we have assessed the high diagnostic value and indisputable advantages, fast and simple way of diagnostic and furthermore treatment with DIAGNOCAT. Innovative diagnostic method of maxillary sinusitis was described and identified.

Conclusion. DIAGNOCAT is almost unmistakable, and gives a complete picture for diagnosis, describes in details endodontic status of the tooth, the variability of the anatomy of the root canals, as well as the volume of periapical lesions of the causative tooth. It’s a convenient communication tool to create trust between doctor and patient. Based on the data obtained as a result of the analysis of CBCTs by artificial intelligence DIAGNOCAT, it was found that in most patients, inflammation of the maxillary sinus was diagnosed after previous dental treatment: inflammation is detected when the sinus floor is perforated during endodontic manipulations and with inadequate obturation of the root canals of the teeth, the roots of which are adjacent or will stand directly into the cavity of the maxillary sinus. It was also found that inflammatory changes in the mucous membrane of the maxillary sinus are predetermined by the existence of a pathological focus in the projection of the apex of the tooth.