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Application of artificial intelligence in different fields of oral maxillofacial surgery

Arian Yeganeh

Shahid Bahonar Hospital, Iran

Aim: Artificial intelligence is the ability of intelligent machines to predict unknown variables by using algorithms and internal statistical patterns and information structures. In the structure of artificial intelligence, which are divided into two general categories, machine learning and deep learning. Neural network is used. The working areas of artificial intelligence in maxillofacial surgery are wide and in the fields of rhinoplasty, orthognathic surgery, cleft lip and palate, cancer.

Methods and Materials: This study examines articles from 2000-2023. Google Scholar and PubMed databases were used for searching. And keywords such as artificial intelligence - machine learning, deep learning were investigated. The inclusion criteria for this study were all the articles that were written in English in field of maxillofacial surgery.

Results:

Rhinoplasty: The application of artificial intelligence in the field of examining bone shape, examining the beauty of patients based on the evaluation of pre-treatment photographs and predicting the results of the operation based on radiographic interpretation.

Orthognathic surgery: Artificial intelligence can be used in the field of lateral cephalometric tracing, scanning of patients' occlusion using machine learning.

Cleft palate and lip: Examining the success rate of bone grafting in the alveolar cleft.

Oral cancer: The application of artificial intelligence in risk factors using neural algorithms can predict the mortality rate.

Conclusion: What was discussed in this review article is the applications of artificial intelligence and its sub-branches, including machine learning, deep learning, in various branches of maxillofacial surgery, including orthognathics, rhinoplasty, cleft lip and palate, and oral cancer.

Biography

Arian Yeganeh is working at Shahid Bahonar Hospital, Iran