

Application of Artificial Intelligence for Detection and Diagnosis of Dental Caries.

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ABSTRACT

Impact of Artificial Intelligence on Detection and Diagnosis of Dental Caries: With the increased availability of data and its computation Artificial Intelligence has stepped into dentistry. Along with all branches of dentistry it has affected the speed, accuracy, sensitivity and specificity of Detection and Diagnosis of Dental Caries.

Keywords: Artificial Intelligence Neural Networks ANNs CNNs

Introduction :

Artificial Intelligence as of today mimics the cognitive functions of human brain. This has become possible because of the enormous increase in the storage of data relating to any particular field. The use of this type of intelligence is done by machines through a process called Machine Learning. Neural Networks are algorithms which compute signals via artificial neurons.

Deep learning or Convolutional Neural Networks(CNNs) process large and complex images.

Application of AI in Detection and Diagnosis of Dental Caries.

Artificial Intelligence has been used mainly in dentistry to make the process of diagnosis more fast, accurate, sensitive and specific.

Materials and Methods:

Various researches were looked into and were included.

Results

Studies included were mainly on application of AI for detection and diagnosis of dental caries, diagnosis of proximal dental caries, diagnosis of dental root caries and periapical lesions. Mostly the studies have utilised CNNs and ANNs.

Discussion

Various researches from 2008 to 2020 mostly using CNNs concluded that detection of caries was satisfactory and can be allowed for clinical application.

Conclusion:

Artificial Intelligence has stretched detection and diagnosis of caries to newer limits where the margin of error is nearly negligible. Also it gives the operator more ease of working and surety of results.

Reference:

Devito et al 2008, Lee et al 2018, Casalegno et al 2019, Ekert et al 2019, Hung et al 2019, Schwendicke et al 2020