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EDITORIAL
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Editorial: Amelogenesis Imperfecta

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Editorial on the Research Topic

Amelogenesis Imperfecta

AI is a rare hereditary condition that requires treatment due to esthetical, functional, and related psychosocial problems. According to different incidence studies conducted in different geographical regions, the frequency of AI has been reported in a wide range from 1:700 to 1:16000. AI is divided into various phenotypes according to the anatomical and histological features of enamel. It is observed in four main types; hypoplastic, hypocalcified, hypomature, and hypomature-hypoplastic observed with taurodontism. These four main groups are divided into at least 15 subtypes depending on their phenotype and heredity. AI is caused by the mutation of various genes that have critical roles in normal enamel formation. Although it is known that a total of five genes (AMELX, ENAM, KLK4, MMP20, and DLX3) play a role in enamel formation, mutations of candidate genes are still being studied. Inheritance occurs as autosomal dominant, autosomal recessive, and X-linked inheritance.

Regardless of the type, similar clinical complications are observed in patients with AI. These are; abnormal color and structure of enamel, susceptibility to caries, severe tooth sensitivity, decreased occlusal vertical dimension, and abnormal aesthetic appearance. Other dental anomalies such as a large number of impacted teeth, congenitally missing teeth, taurodontism, hypercementosis, root malformations, pulpal calcifications, and skeletal malocclusions (anterior open bite, class 3 malocclusion) are not observed in all patients with AI.

This Research Topic is aimed to evaluate the clinical and radiographic intraoral findings of AI cases and to contribute to the dental literature on genetic research.

The Editorial team focused to provide information about the analysis of the function and mutation of the genes which cause AI and discuss how mechanisms affect genes and individual susceptibility to hypoplasia of the enamel tissue.

In conclusion, there is well-known information that mutations in several genes can lead to AI. These same genes and other members of their pathways quite possibly contribute to individual susceptibility to dental caries and/or erosive tooth wear. (1) We are now in the new era of genetic engineering including regenerative medicine, and numerous contemporary applications in modern dentistry.

Comprehension of recent advances in genetic research in dentistry would lead to finding the best application according to the type of AI and the most successful treatment strategies to improve treatment outcomes of patients. The guest Editorial team hopes that the present Research Topic provides additional information for this Research Topic and would encourage other researchers for their future works in this field.

Nowadays it is thought that AI is not a dental disease, but also appears as an oral symptom of some systemic diseases. For that reason it deserves more attention by other medical branches.

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