Brief Note on Dentinogenesis Imperfecta

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Description

Dentinogenesis imperfecta is a condition characterized by translucent, discoloured teeth (usually glogray or tan). People with this disability tend to have weaker teeth than normal, leading to wear, breakage, and tooth loss. This damage can include fractures of the teeth and small holes in the enamel of the teeth. Dentinogenesis imperfecta can affect both deciduous and permanent teeth. People in this condition may also have speech problems or teeth that do not fit properly in the mouth. It is caused by mutations in the DSPP gene and is inherited in an autosomal dominant manner. According to the original classification, there are three types of imperfections in tooth formation. Researchers have described three types of tooth formation imperfections with similar tooth abnormalities. Type I occurs in people with osteogenesis imperfecta, a genetic condition in which bones are Brittle and fragile. Dentinogenesis imperfecta types II and III usually occur in people without other hereditary disorders. Some elderly people of type II suffered from progressive high-frequency deafness in addition to tooth abnormalities, but it is unclear whether this deafness is associated with tooth imperfections. Some researchers believe that Dentinogenesis imperfecta types II and III coexist with a condition called Dentinogenesis imperfecta type II, which is actually a single state form. The signs and symptoms of Dentinogenesis imperfecta type II are very similar to the signs and symptoms of Dentinogenesis imperfecta. However, type II Dentinogenesis imperfecta has a greater effect on deciduous teeth than on permanent teeth.

Signs And Symptoms

Type III tooth hypoplasia is characterized by rapid erosion of the crowns of deciduous and permanent teeth. The pulp of some teeth may be exposed. This pulp is milky white, smooth and can be amber. The pulp cavity and root canals can look very large on x-rays of deciduous teeth. Permanent teeth can show a decrease or complete loss of the pulp cavity and root canal. Carriers of the gene for this disorder may have teeth that look normal. However, upon examination, their teeth have only a wafer-thin layer of ivory and an enlarged pulp cavity (shell tooth). Enamel pits can occur in the patient's permanent teeth.

Causes

Mutations in the DSPP gene have been identified in people with type II and type III tooth Dentinogenesis imperfecta. Mutations in this gene are also responsible for type II Dentinogenesis imperfecta. Osteogenesis imperfecta type I occurs as part of osteogenesis imperfecta caused by mutations in several other genes (usually the COL1A1 or COL1A2 gene). The DSPP gene provides instructions for making two proteins that are essential for normal tooth development. These proteins are involved in the formation of dentin, a bone-like substance that forms the protective middle layer of each tooth. Mutations in the DSPP gene alter the protein made from the gene, producing abnormally soft dentin. Dentin-deficient teeth are discoloured, weak and prone to putrefaction. It is unclear whether mutations in the DSPP gene are associated with hearing loss found in some elderly people with incomplete type II dentate processes.

Inheritance

Dendrite imperfections are autosomal dominant, meaning that only one modified copy of the DSPP in each cell is sufficient to cause the disorder. We inherit one copy of each gene from the mother and the other from the father. In most cases, a person affected by tooth hypoplasia has one parent in that condition, but those who do not have an affected parent may have the first symptoms. In these cases, the genetic changes are not inherited from either parent and are therefore called de novo.

Treatment

If you suspect that you are showing symptoms of DI, ask your dentist for a complete assessment. Treatment of tooth hypoplasia generally first focuses on the patient's first tooth. This includes restoration procedures such as crowns and preventative filling to strengthen fragile teeth. In later years, if a denture is needed, the dentist may recommend a dental implant or denture. With medical guidance, it is possible to test the genetic association to DI and obtain an accurate diagnosis. Your dentist can refer you to a professional healthcare provider. Together they can help you meet your specific dental needs. Imperfections in the dentition can cause you to lose confidence in your smile. However, with a thorough analysis of the symptoms and the help of a dentist, you can get the treatment you need and get your smile back.

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