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The Reports of Cleft Patients from 2023-2024 and its Possible Link, Discussions and its Search for a Minimal Therapeutic Alternatives Still Remains

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Abstract: ***Clefts being the commonest craniomaxillofacial disorders today can be due to multifactorial reasons which need further studies. In this article, we report a case of multiple cleft patients done under mission smile (India) where the commonest possible link being nutritional deficiency in a mother and second being a father who had history of alcohol intake. Still, further study is needed whether cleft etiology on a cell level is directly link to either just a single mother or her habits or link to both the parents. Do the father genes play an important role and does alcohol intake really affect the child. Why cleft occurs in just the lip and palatal area. Is it because there is suture or is it because of the cells that are more prone to nutritional deficiency. Suture are also present in the other facial skull bones but somehow cleft seems to occur in mostly the lip and palatal region which might be due to nutritional, cell, genetic and environmental habits that a child does during pregnancy while feeding which needs further studies.***

Keywords: craniomaxillofacial**,** retinol, cadherin, multifactorial

1. Introductions

Cleft lip, with or without cleft palate, is the most common craniofacial malformation seen at birth, affecting one in 700 live births. About 1 in every 1, 600 babies are born with cleft lip with cleft palate in the United States. About 1 in every 28, 00 babies is born with cleft lip without cleft palate in united states. About 1 in every 1, 700 babies are born with cleft palate in the United States. Cleft occurs frequently in Asians but least common in Africans.

2. Reports

From 2023 January to January 2024, a case of cleft lip and cleft palate patients were being checked up in the OPD and had undergone free surgery by the help of an organization call mission smile all over India. After going there as a volunteer I started working on clefts and had completed free surgical camps in my own small state call as Mizoram and now I had to write down these findings which might further improve the clinical therapeutic world .

While going through countless numbers of cases and asking questions from different surgeons, we came across many mothers with nutritional deficiency mainly folic acid and iron and fathers who had a history of alcohol intake. We also came across mothers without any habits and mothers who had a history of smoking. In one cases we came across a mother who had previously taken arsenicum tablet and had no history of smoking or taking retinol or retinoic acid. There were mothers who had not taken any alcohol and drugs but father being an alcoholic as well. But, majority seems to have link to nutritional deficiency.

3. Discussions

According to literature findings, increase in cleft with syndrome appears to be due to increase in maternal age. Alcohol and tobacco teratogenic dose response effect is still a matter of debate. No strong association between folate supplementation during pre conceptional period. Folate pathway was suspected to have a role in NSCPO etiology. MTHFR gene seems to play a significant role in cleft patients. Environmental factors like stress, smoking, infections, medications and malnutrition also increase risk of cleft lip. There are families who have e-cadherin gene mutations which is known to implicate cleft lip. e-cadherin plays an important role in foetal development, the neural crest (the embryonic stem cells which form facial structures) move in two halves, wrapping around the head, before joining together to form the face, these requires e cadherin to act as a glue between two cells. The cuase of orofacial clefts appears to be changes in genes as well. Studies demonstrated that there was no association link between vitamin and isolated cleft oral clefts. However there was a lower risk for orofacial clefts that occurred in combination with other malformations. Palatal development takes place between 5^{th} and 12^{th} embryonic weeks with the most critical week during 6^{th} and 9^{th} week. Palate is compose of migrating mesenchymal cells, mainly derived from migrating neural cells, layerted by epithelial transition, differentiation and apoptosis of these cells from the regular development of palate. Stems cells have been tried. Muscles derived stem cell (MDSC) seems a better choice than muscle precursor cells as the latter needs BMP2 for vitro.

4. Conclusions

Since there are lots of possible reasons and various reasons, it is a major challenge to say the specific cause but, if we can further research this field a bit deeper with persistence, we might be able to find the majority of the cause and try to combine this with the clinical therapeutic world and try to alter the pathway or create a specific chemical or drug that could improve the mothers health during pregnancy. There should also be a study on the cellular level as to why cleft occurs only in the lip and the palate and if there is any prone areas that causes cleft to occur in this area. Is the cells different from mother areas. Is the pathway during which

cleft follows different and is it possible to alter it. Is there a specific safe time to give therapeutic treatment to prevent the cause in a mother. Is the father's health, habits and cells directly link to cleft as well. Are Africans having genes which could protect them from clefts as studies had shown that there are less number of cases. All these studies must be done which can only be done by combining clinical with the non-clinical fields. Is there any tissue which could be engineer to close the palatal space and is there any stem cells therapy that could tackle the palatal cleft to avoid major steps operations. All these must be consider in the near future by researchers since cleft lip and cleft palate occurs in many newborn children every year. The need for a therapeutic alternatives and preventions still remains even today.

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