

Male infertility and dental health status: the missing link?

More than 48.5 million couples worldwide are unable to conceive, and at least 40-50% of the cases are associated with male factor infertility (MFI), affecting approximately 31 million men worldwide. MFI is defined as alterations in sperm morphology, concentration and/or motility in one sample of at least two sperm analyses, collected between 1 to 4 weeks. The etiology of MFI is considered multifactorial, and several risk factors have been associated with this condition. However, in the half of the cases the etiology of MFI remains unexplained

Oral diseases (OD) are a group of chronic infections originated primarily from dental caries, and chronic periodontitis (CP). In the past 30 years a bi-directional linkage between OD and several systemic conditions such as atherosclerosis, myocardial infarction, diabetes mellitus (DM) and erectile dysfunction have been reported. Interestingly, a limited number of studies have identified an association between MFI and OD. In our study it was hypothesized that a direct relation exists between dental health status and MFI.

In total 7 studies were included in the systematic review and processed for data extraction. In all studies a positive relationship between MFI and oral diseases associated to caries, necrotic pulp and/or CP was reported. In the study by Bustos-Obregon et al., a higher caries index was reported in sub-fertile men compared to normozoospermic men; likewise, improvement in sperm progressive motility was reported after restorative dental treatment among sub-fertile men. Similar findings were reported in 3 studies where a significant improvement in bacteriospermia levels (66% of the samples were bacteria free), and sperm parameters (morphology, density and motility) were reported in sub-fertile patients with bacteriospermia resistant to antibiotics after comprehensive dental treatment; in addition, 33% of the patient's female partners were able to conceive thru in vitro fertilization after the men received dental treatment.

Nwhator et al. reported a significant association between probing depth (PD) and subnormal sperm count in men aged between 33 and 38 years. Similar findings were reported by Klinger et al. (2011) where a significant association between PD, clinical attachment loss and sperm motility was found; however, no relationship between periodontal parameters and sperm count was reported. Zhu et al. (2010) reported a higher prevalence of CP in infertile men compared to normozoospermic controls; along with the increase of CP severity a deterioration of sperm parameters (concentration, motility and abnormality) was reported.

It is therefore hypothesized that individuals with OD are more likely to develop MFI as compared to individuals without OD. However, these findings need to be interpreted with caution. Firstly, it is noteworthy that nearly 72% among the included studies did not adjust the results for smoking, and approximately 86% of the studies remained unadjusted for diabetes mellitus, and alcohol consumption. Furthermore, all the studies were short period investigations, conducted in only 5 countries, with a reduce number of participants, and without assessment of socio-cultural factors associated to MFI, such as ethnicity, taboos, religious practices and beliefs, attitudes and habits.

Within the limits of the current available evidence there seems to be a positive association between MFI and dental health status; however, further longitudinal studies and well-designed randomized control trials assessing confounders are needed to establish real correlation. It is emphasized that dentists and general practitioners should be aware of the fact that OD can influence the systemic health, including men's reproductive health. Therefore, andrological examination should include comprehensive oral evaluation, and physicians detecting OD should refer the patient to a dentist for further evaluation and treatment.

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