

antimicrobial properties. So to overcome this problem silver nanoparticles are added in tissue conditioners [8].

Denture teeth: Denture in prosthodontics is used to restore a natural missing tooth structure. Denture teeth are made up of acrylic and porcelain. Porcelain is a wear resistant material but has its own disadvantages as it cause residual ridge resorption. So acrylic teeth are more preferable for fabricating a denture, but it undergoes excessive wear. Denture tooth with Nano science comprises of Poly-Methyl Methacrylate (PMMA), and uniformly dispersed nano-sized filler particles which have its own advantages such as it is highly polish able and stain resistant material, superior surface hardness and wear resistance, esthetic material [7].

Light cure nano composites

Development of newer light cure nano composites has been lead due to the advancement of nano fillers into the resin matrix. The main advantage of light cure nano composites is its superior properties with improved mechanical strength and wear resistance. In comparison with micro fill composites it has superior polish and gloss resistance [9].

Implants: Osseo integration of implant is widely accepted in clinical dentistry, failure to which can cause failure of implant. Since the last decade many clinicians have been fascinated by nanostructured hydroxyapatite coatings for implant. Nanostructured hydroxyapatite helps in increasing osteoplastic functions such as adhesion, proliferation and mineralization. It also promotes bone formation around the implant. Treatment such as surface roughening by sand blasting, hydroxyapatite coating have been applied to improve bone growth [10].

Maxillofacial prosthesis: Maxillofacial prosthesis is a prosthesis which artificially restores missing or lost portion of the body. Maxillofacial prosthesis may be intraoral or extra oral, it depends on the defect site. Various materials are used to fabricate maxillofacial prosthesis but most commonly used is maxillofacial medical grade silicone. Prosthesis on defect site can adhere or grow microbial growth on the defect site. Studies have shown that incorporation of silver nanoparticles in maxillofacial prosthesis have prevented the growth of candida albicans without any toxic effect to human dermal fibroblast cells. It also manifests that TiO₂ and ceramic dioxide exhibits least hue changes. Study conducted by Han Y in 2010 states that titanium oxide particles best maintain the ideal properties of maxillofacial silicone when it mixed with medical grade 2186 maxillofacial silicone material [11].

Ceramics: Alumina Ceramics that we use routinely have superior mechanical properties, but its major drawbacks are that it is more likely to crack. Zirconia possesses properties of fracture resistance. Series of studies were conducted with regards to toughness and strength of nano ceramics like, Wang, et al. in his experiment stated that nano ceramic yielded better results when it is compared with other ceramics [6].

DISCUSSION

Challenges faced by nano dentistry

The use of nanotechnology in dentistry has taken the field by storm; there are still various challenges at engineering, biological and social level. Feasibility of mass production, positioning and assembling the molecular scale precisely are some of the challenges at engineering level. Nano materials can be pyrogenic, thus production of a bio friendly material is a biological challenge. Social challenge or social acceptance by the public in the society

Such as ethics and human regulation is still a great matter of concern which needs to be addressed before nanotechnology can enter the modern dental armamentarium.

Safety issues: Nanoparticle is having a smallest diameter which covers the larger surface area. Rate of absorption is mainly depends on the coverage of surface area. Therefore chances of absorption in skin, digestive tract and lungs could be more. This could cause adverse effects in the body. If not taken care then it can be hazardous to human health so proper care should be taken when it comes to nanoparticles, it's because of the safety issues of someone personal health and also for the workers who are mostly involved in manufacturing processes. It can also be harmful for the environment because of the consumers who eliminate it [7].

CONCLUSION

The science and uses of nanotechnology and nano sciences are constantly evolving with the evolving era. This comes with great responsibility to insure the safety, efficiency, and applicability of such new technologies. From developing of new materials or improving the properties of materials there will always be plenty of expectations from nanomaterial's. The advancement in nanotechnologies will act as a future of dentistry. Further research should aim at production of nanoparticle-containing dental materials to enhance the quality of treatments provided to patients. Let us make a change and instead of waiting for something's to happen let's just start believing and contributing our part for a healthier and brighter side of future.

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