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RECENT ADVANCES IN DENTISTRY - A THEORETICAL REVIEW

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ABSTRACT :

Thisarticle is about the recent advances in dentistry in all aspects. There have been many advancements that have made dental procedures very effective and cost less. Imaging technologies, Dental restorative materials, Dental implants, Paediatric dentistry, Operative dentistry, Preventive dentistry and Anesthesia dentistry are some fields in dentistry which has a lot of recent advancements. Dental materials have undergone a lot of advancements making it easier for the patient and long lasting. These advances have made the visit to the doctor pleasant. Dentists should educate the patients on how these advances would help them. Invisalign is the latest technology in dentistry. This is a clear alternative to metal braces which is transparent and helps you have a better smile.

INTRODUCTION

The important goal in dentistry is to provide best dental care to the patients. Science is undergoing great revolutions that are leading humanity towards a new era of dentistry (1). There are many recent advances in dentistry which include restorative dentistry which is improved by having bioactive property

and antibacterial effects (2). The dental restorative materials these days have been improved on their curing behaviour, aesthetics and material properties. These materials have been the focus of a great deal of research in recent years (3) .

Imaging technologies in dentistry have made its way from simple intra oral periapical X rays to advanced imaging techniques (4). Oral implantology has recently come up with biomolecular coatings. A variety of techniques has been introduced such as titled implants, zygomatic implants and short implants (5). In anaesthesia dentistry topical anaesthetics has come up with new ingredients and application methods (6).

Dentistry has played an important role in the detection of patients with hypertension. Ceramics restoration also has advances which include improved processing techniques and greater mechanical properties (7). Intra oral scanning technology is a fast growing field in dentistry. It is based on non contact optical technologies and principles (8). The aim of the study is to know the recent advances in dentistry for better treatment and diagnosis.

IMAGING TECHNOLOGIES

This field has come up with new radiographic techniques. These advancements help in detection of pathologies in a very early stage which can reduce morbidity (4) . Improved diagnostic outcomes can be obtained if used properly and can provide insight into other aspects of the imaging process that may be limiting that outcome (9). The latest 3D surface is non contact and the measurement is based on structure illumination (10). Ultrasonography is an imaging modality which is recommended as it is a non-invasive, inexpensive and painless method (11).

DENTAL RESTORATIVE MATERIALS

This field is a great **deal** of research and the goal is to improve restoration performance by developing polymerisation strategies (3). There has been improvisation in many materials such as glass ionomers, composites and pit & fissure sealants(12). For better proliferation zirconia based frameworks are used. Computer aided fabrication is done for prosthesis (13). Dental amalgam is versatile and is used as an economic alternative. There are many types such as resin coated, fluoridated and bonded amalgam (14).

DENTAL IMPLANTS

The implants used these days have a biomolecular coating which shows good results. It is found that immediate loading is better than conventional as it is successful. In the same way short implants are better than standard implants (5). There are many types of implants such as mini implants, transitional implants and one piece implants (15). Integration with computer aided technology such as CAD and CAM and using CBCT data will give a successful implant (16).

PAEDIATRIC DENTISTRY

The recent advancements in this field are caries detection tools and caries risk assessment tools which helps in early interventions. There is change in dental materials used in paediatric procedures (17). This field works on the preventive and restorative aspect which has been improved. There has been an improvement in pain management and caries detection methods (18). The primary dentition can be analysed using a digital model as it has high accuracy level when compared with direct measurement (19).

OPERATIVE DENTISTRY

The advancements in this field is 3D printed teeth, tissue engineering and nano ionomers (1). There have been various new techniques such as minimal intervention dentistry, nanotechnology, dental materials advancements and pain & infection control (20). Adhesive dentistry is a fast changing field due to aesthetic awareness (21).

PREVENTIVE DENTISTRY

This field helps in prevention of orodental disease and provides awareness on oral health by programmes motivating them on the importance of oral health through health education (22). This field can be improved when the government and private firms have a relationship in promoting oral health (23). The issues involved here are dental manpower issues and dental insurance (24).

ANAESTHESIA DENTISTRY

The recent advancements in this field is nasal spray which is more effective for single tooth anesthesia even intraligamentary injection can be used (25). C-CLAD and IO injection are important advances in effective pain control (26). Lidocaine patch, vibratory devices, articaine, nasal spray, C-CLAD and STA are remarkable advances (27).

DISCUSSION

In our department previously research studies on many topics (28),(29),(30),(31),(32). Many topics were related to fitness of dentists (33),(34),(35) . Many other awareness topics were also studied (36),(37),(38),(39),(40),(41),(42). The present study done is about recent advances in dentistry.

Dental ceramics is improved with high technology which gives us heat pressed, injection molded, slip cast ceramics and glass ceramics (7). The nanocomposites is an organic monomer discovery which has brought modifications in the formulations. The filler technology is an advanced light curing equipment which are efficient photo initiators. The problems faced in nanocomposites are polymerisation shrinkage, wear resistance and premature restoration failure (43). These have been strategies to manage patients with dental anxiety and phobia. There have been use of general anaesthesia and conscious sedation.

Therapies such as behavioural and cognitive therapy and psychotherapeutic and pharmacological intervention(44). There is still no adequate economic alternative for dental amalgam. The combination of reliable long-term performance in load bearing situations and low cost is unmatched by other dental restorative material (14). Zirconia based framework may be a potential solution for ceramic related clinical problems like chipping and fracture and associated complicated repair procedures in implant supported fixed dental prostheses (13).

CONCLUSION

The dentistry field has been rapidly fast growing now yet not like other medical fields. The field is constantly making changes to best suit the patients needs. The advances are making procedures faster, long lasting and easier.

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