Tooth and implant connection

- Cohort study

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Abstract

Implant treatment is a proven method of partial or total restorations.

In the case of insufficient bone base for dental reconstruction we are required to make relatively traumatic,expensive,risky and time consuming procedure such as bone grafts,GBR bone distraction,lateralization of alveolar nerve.

For those reasons in the case of:poor general patients health,costs reducing and shortening the therapy time some authors design prosthetic restorations based on dental implants and natural teeth.

Background and Aim

Assess the safety and clinical effectiveness and longevity of prosthetic work

Combining implants with patient's own teeth based on the literature. The additional pupose is to identify solutions that gives the most favorable survival rate for idental implants and natural teeth.

Methods and Materials

Polish and international databases has been provided.

- Polish Main Library of Medicine in Warsaw has been investigated. The keyword in the first index was "implant" in the second "tooth" and in the third "bridge". Classification code was "stomatology". In this way were found publications in which all three worlds were found.

- The following international databases of full-text journals were investigated: Nature, Springer and Elsevier. Investigated available bibliographic databases were Pubmed. In each of the search following keywords were entered:

Password no. 1) tooth implant fixing

Password no. 2) bridge supported by implant and tooth

Password no. 3) implant and tooth connection

- The criterion for inclusion of a publication for review was the description of the connection between the implants ans the patient's own teeth using prosthetic work. The exclusion criterion concerned the use of other prosthetic solutions.

Results

		ELSEVIER	NATURE	SPRINGER	PUBMED
source					
keyword					
TOOTH IMPLANT FIXING	found	338	286	726	4
Keyword NR.1	qualified	2	2	4	0
BRIDGE SUPPORTED BY IMPLANT AND TOOTH	found	1838	155	278	86
keyword NR.2	qualified	17	0	2	24
IMPLANT AND TOOTH CONNECTION	found	596	64	240	248
keyword NR.3	qualified	2	3	3	33
Total qualified number		92			
Number of dublications		20			
Final number of qualified and analyzed publications		92-20=72			

In total,4859 results were obtained. Based on the criteria of inclusion and exclusion for further literature studying qualificate 92 publications. There were 20 repetitions in this group. The final number of publications qualified for literary analysis was 72.

The Authors of this paper have divided the material into model work and clinical work. For model work 38 publications were qualified.

34 publications have been qualified as a clinical work.

Due to the purpose of the study, the authors distinguishing three basic forms of prosthetic solutions:

- 1.) Rigid Fixed Denture Prosthesis (RFDP). 16 publc.
- 2.) Non-Rigid Fixed Denture Prosthesis (NRFDP). 8 publc.
- 3.) Removal prosthesis connecting the implant with the teeth. 4 publc.

In 8 papers the authors analyzed the RFDP and NRFDP simultaneously.

In 6 papers the advantages of the method of combining implants with teeth were described. The benefits of combining implants with teeth are:

1. costs reducing,
2. reducing the level of trautisity of treatment,
3. treatment time shortening,
4. usege in limited anatomical conditions,
5. useage in poor patients general health,
6. useage in stabilization of teeth with implants,
7. lower fracture frequency of the porcelain (comparison to bridges based only on implants).

Results continuation

Types of complications	Number of complications out of number of teeth, implant , prosthetic suprastructure and amount in percent.
Bridge loss of fixations RGD+NRGD	46 out of 307/ 5 publications/ RATIO: 14, 98 %
Teeth intrusion	35 out of 835 / 5 publications/ RATIO: 4,19 %
Damage to the implant structure: breakage / loosening of the connecting screw, implant rupture RGD+NRGD	26 out of 992 / 10 publications / RATIO: 2,62 %
Damage to the prosthetic structure, eg porcelain or composite fracture. RGD+NRGD	26 out of 714 / 7 publications/ RATIO: 3, 64 %
Pulp necrosis RGD+NRGD	14 out of 643/ 3 publications / RATIO: 2,18 %
Periimplantitis RGD+NRGD	13 out of 578 / 6 publications/ RATIO: 2,25 %
Periodontitis	7 out of 311 / 4 publications / RATIO: 2,25 %
Loss of tooth RGD+NRGD	6 out of 553 / 3 publications / RATIO: 1,08 %
Cracking / breaking a tooth	2 out of 331/ 2 publications / RATIO: 0,6 %
Loss of tooth	11 out of 494/ 2 publications/ RATIO: 2,2 %

Complications were investigated in 14 papers. Complication rate was about 3.32%. The total number of patients was 5264 from these numbers 175 has a complications. This is about 3.32%. This is the percentage of the risk of complications during work performed on both the implant and the patient's own dentition.

Conclusions

1. Rigid connection is better to prevent from tooth intrusion.
2. In non-rigid connection,authors suggest to make latch on the implant side.
3. Bonding on temporary cement is more likely to be remodeled, but there are less complications associated with tooth intrusion.
4. Retains deep perception which protects against excessive occlusal forces.
5. Slightly more complication but easier to solve.