



INCIDENCE OF PERI-IMPLANTITIS IN IMMEDIATE LOADING VS. DELAYED LOADING IMPLANTS

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ABSTRACT

In the era of new world dental implants replaces the removable partial dental and fixed partial denture. Dental implant can replace the single tooth to multiple tooth, after implant placement successful osseointegration is one of the important factor. Osseointegration is the process binding of bone with the implant surface. In this review article we discuss the two implant placement technique and they are depends on time duration after the extraction of implant. Immediate implants are placed immediately after the tooth extraction with and without use bone graft. Delayed implants are placed after 3-4 months after the extraction of tooth. So, the main aim of the review paper was the Incidence of Peri-implantitis in immediate loading vs. delayed loading implants.

KEYWORDS: Osseointegration, Peri-implantitis.

INTRODUCTION

Introduction of dental implants for replacement of missing tooth changed the phase of prosthetic dentistry, where a missing tooth can receive a restoration more analogous to natural tooth without the hassle of crown and bridge. Implants are becoming a predictable alternative for routine replacements in edentulism. Beginning of the era of implant prosthesis, two stage procedures were followed with waiting period of three to six months from implant insertion to loading. Meanwhile, patients had to deal with functional concerns until osseointegration and the fabrication of a new prosthesis. Not only the functional concerns, but also the psychosocial impact of missing teeth can be overwhelming to patients.^[1]

Over the time, with improved manufacturing technology, understanding of the healing cascade changed the concept of delayed to immediate loading. In recent years, immediate loading of implants became a reality, not only in a partially edentulous patient but also in completely edentulous patient. Immediate loading with provisional restoration shortens the time to return to function, that result in a definitive restorative solution immediately following surgery.^[2,3]

Recently, immediate and early implant loading protocols have become popular.^[4] The first clinical trial on immediately or early loaded Brånemark System (Nobel-pharma) implants was conducted in 1990.^[6] The 10-year results of this study showed that the failure rate for

immediately loaded implants was significantly higher than that of the conventional submerged technique implants.^[7] With the development of clinical techniques and implant surface modifications, a number of good quality randomized controlled trials (RCTs) have reported high survival rates for immediate loading implants, some of which even showed no implant failure.

Systematic reviews have concluded that clinically significant differences in implant failure associated with different loading times are lacking. However, meta-analyses have concluded that immediate loading has resulted in reduced implant survival rates. Moreover, controversy also exists among these systematic reviews in regard to marginal bone level changes, implant stability, and probing depth.^[6]

The authors are unaware of a meta-analysis of these issues, presumably because of the high heterogeneity in the description of soft-tissue status, the subjective feeling of patients, and other variables. Therefore, the differences between immediate, early, and delayed loading are unclear. In addition, the systematic reviews performed by Esposito et al and Sanz-Sanchez et al³ noted a high or moderate risk of bias in most included RCTs, the influence of statistical units going unnoticed (patient or implant), high heterogeneity shown in meta-analyses, and a significant number of RCTs published or data updated in recent years. Additionally, factors that were not investigated included the healing

method, implant time, tooth position, use of surgery guide, and the flap or flapless approach.^[4,6]

The effects of the following elements were evaluated in subgroup analyses: number of missing teeth, immediately functional or nonfunctional loading during the osseointegration period, healing methods in the control group (submerged or transmucosal), implant time (immediate, early, or delayed), tooth position, surgery guide (used or not), definitive or interim prostheses as the initial restoration, and surgery protocols (flap or flapless).^[7,9]

So, the aim of the review article was to brief about the incidence of peri-implantitis in immediate loading vs. delayed loading implants.

MATERIALS AND METHODS

A computer search was performed of article son pubmed from 2010 to October 2019. Key words such as immediate function, immediate loading, delayed loading, dental implants, bone-to-implant contact, bone density, poor bone quality were used alone and/or in combination to search the database. To find further potentially relevant articles, a precise hand search was performed by reviewing all issues since 2010 of the main journals in the field of Implant Dentistry(Clinical Oral Implants Research, International Journal of Oral and Maxillofacial Implants, International Journal of Periodontics and Restorative Dentistry, Journal of Periodontology, and Clinical Implant Dentistry and Related Research) was performed. Finally, a search was performed of the references of review articles and the most relevant papers.

Inclusion criteria included that all studies required a minimum of 1 year post implant loading or had to contain the histology of the bone implant/interface of immediately loaded implants. Hundred articles satisfied these criteria and were therefore included in this literature review.

RESULTS

Data analysis showed high numbers of studies on immediate and delayed loading with high implant survival rates (ISRs) (Tables 1 and 2).

The IL of implants was documented indifferent bone qualities. Of significant interest was the ISR of IL implants in poor bone quality, as documented in the maxillary arch and the posterior mandible (Figures 1a through f).

Histologic results utilizing the IL protocol in animal and human studies showed excellent bone-to-implant contacts (Fig-ures 2 through 5). Histologic and histomorphometric information from the different studies on IL, such as evaluation of bone-to-implant contact (BIC) percentages and bone volume(bone density)of immediately loaded implants, is presented in Table 3 and

shows relatively high BIC % levels indifferent species and humans when the concept if IL is used. Of great importance seems to be the implant thread geometry included in these studies (Table 3).

DISCUSSION

Immediate loading vs delayed loading the high ISR of immediately loaded implants has significant relevance in that this protocol can reduce treatment time and provide a definite benefit for patients. There is no doubt that the concept of delayed loading has been used successfully for many years, and therefore the number of placed implants in different studies is higher that the number of immediately loaded implants. In addition, the histologic validity of this concept has been evaluated without differences com-pared with the IL concept.^[9-10]

However, prospective longitudinal study investigated IL protocols in terms of clinician-related and patient-based out-comes. The authors reported a significant improvement in satisfaction and quality of life following treatment with implants when the IL treatment protocol was used. Today, in selected cases, the IL of full-arch mandible fixed prostheses and over dentures supported by implants placed in healed sites has become accepted as a clinical option. This protocol is supported by a high number of clinical studies.^[11-13] In a meta-analysis of articles from 1966 to 2003 found with MEDLINE, Chiapasco with an IL protocol showed an ISR of 95% for implant-supported fixed prostheses and 98% for overdentures in the mandible. Recently, in a systematic review of survival rates for immediately loaded dental implants, DeFabbro et al²⁴reported that 55% of the articles on IL were published in the last 4years, and the average overall ISR was 96.39% Degidi¹⁷ showed accumulative survival rate of 98.6% for full-arch maxillary immediately loaded implants in 55 patients over an average of 3 years.^[14-16]

CONCLUSION

Compared with early loading, immediate loading could achieve comparable implant survival rates and marginal bone level changes. Compared with conventional loading, immediate loading was associated with a higher incidence of implant failure.

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