



## Awareness about Roxolid Implants among Dental Students

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### ABSTRACT

Roxolid implants are endosseous root form implants made of alloy comprising 85% Titanium and 15% Zirconium. This unique combination greatly improves the tensile and fatigue strengths of implants compared to the ones manufactured with commercially pure titanium and its alloys. The aim of the study was to assess the awareness about roxolid implants among dental students. This was a questionnaire-based cross-sectional type of study comprising 100 dental college students in Chennai. A self-designed questionnaire contains ten questions based on the knowledge and awareness about Roxolid implant system among dental college students. Questionnaires were circulated through an online website survey planets questions explored the awareness of using Roxolid implants, their indications, contraindications and clinical advantages. After the responses were received from 100 participants, data were collected and analysed. 37% are aware of Roxolid implants. 33% are aware of the indications of Roxolid implants. 25% are aware of the contraindications of Roxolid implants. 23% are aware of the clinical advantages of Roxolid implants. 3% use Roxolid implants. The awareness about Roxolid implant systems was moderate among dental students. Hence more intensive educational and awareness programs need to be initiated to improve the knowledge and application of Roxolid implants in clinical practice.



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### INTRODUCTION

Roxolid implants are endosseous root structure implants made of alloy including 85% Titanium and 15% Zirconium. This blend incredibly improves the malleable and weariness qualities of implants contrasted with the ones produced with monetarily unadulterated titanium and its alloys. This

increment in quality by ideals of this mix has empowered the production of restricted width and short length implants that can be utilized in a few traded off conditions where ordinary implants are contraindicated. Mechanical tests have demonstrated that Roxolid is more grounded than titanium grade 4. This extraordinary material joins high mechanical quality with astounding osteoconductivity and encourage usage new age of small diameter implants. The reinforced mechanical properties of Roxolid expand the signs in implant treatment to all the more testing clinical circumstances and permit advancing a negligibly interfering management approach which is especially reasonable for older patients with constrained bone availability. Roxolid has a low fracture rate of 0.04%. This is the cumulated fracture rate of all Roxolid small diameter implants in the market and is altogether lower contrasted with titanium implants ([Schimmel et al., 2018](#); [Srinivasan et al., 2016](#)).

The hydrophilic surface of SLActive Roxolid implants is intended for quicker recuperating and higher treatment consistency, even in testing signs. The phenomenal osseointegration properties of Roxolid SLActive Implants help to diminish the general treatment intricacy and improve understanding acceptance. The different points of interest are limited patient nervousness with shorter treatment times, faster recuperating and less post-employable uneasiness with smaller and shorter implants. Smaller-sized implants ensure indispensable structures and vascularization and furthermore limit the psychological obstacle with lower treatment costs (Nyström *et al.*, 2004; Shaik, 2016).

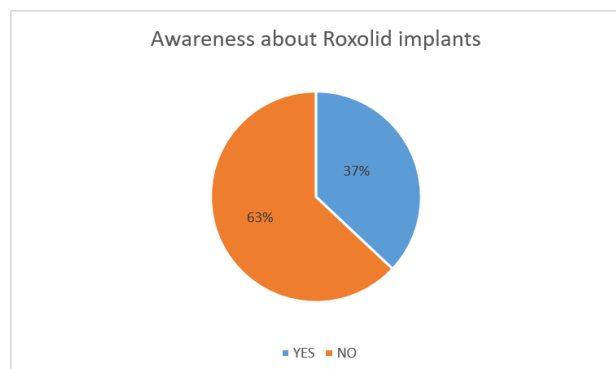
This study was done with an aim to assess the awareness about roxolid implants among dental students.

## MATERIALS AND METHODS

This was a questionnaire-based cross-sectional type of survey involving 100 dental college students in Chennai. A self-designed questionnaire contains ten questions based on the knowledge and awareness about Roxolid implant system among dental college students. Questionnaires were circulated through an online website survey planets questions explored the awareness of using Roxolid implants, their indications, contraindications and clinical advantages. After the responses were received from 100 participants, data were collected and analysed.

## RESULTS AND DISCUSSION

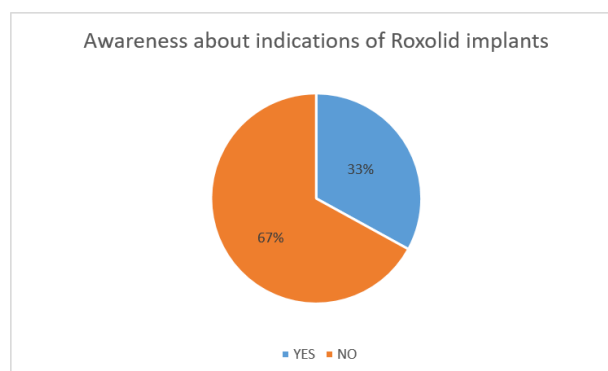
37% are aware of Roxolid implants (Figure 1). 33% are aware of the indications of Roxolid implants (Figure 2). 25% are aware of the contraindications of Roxolid implants (Figure 3). 23% are aware of the clinical advantages of Roxolid implants (Figure 4). 3% use Roxolid implants (Figure 5).



**Figure 1: Awareness about Roxolid implants**

There is considerable literature evidence support-

ing the Ti-Zr Roxolid implants. Sikora *et al.* (2018) examined the consolidated impact of both wear and erosion on the materials at the embed and projection interfaces and revealed high wear obstruction of Zr/Ti, alloy (Sikora *et al.*, 2018). Brizuela-Velasco *et al.* (2017) concentrated to portray the physical properties of Ti-15Zr alloy implants and to depict their biomechanical conduct just as their osseointegration limit contrasted and the ordinary Ti-6Al-4V (TAV) combination implants. Histological examination of the implants embedded in rabbits exhibited higher BIC rate for Ti-15Zr implants at three and a month and a half. Ti-15Zr combination demonstrated flexible properties and biomechanical conduct like TAV composite, despite the fact that Ti-15Zr implant had a more noteworthy BIC rate following three and a month and a half of osseointegration (Brizuela-Velasco *et al.*, 2017).

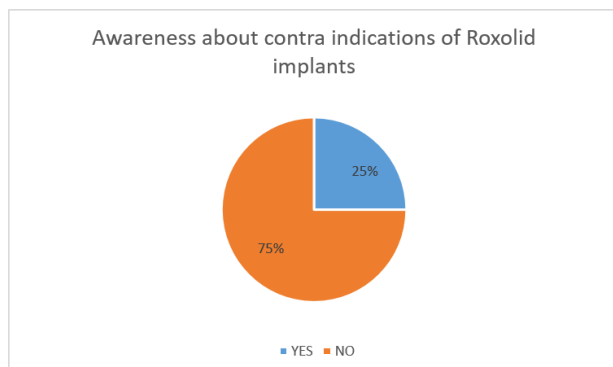


**Figure 2: Awareness about indications of Roxolid implants**

Gamborena and Blatz (2014) assessed the conduct of restricted diameter (3.3-mm) titanium-zirconium amalgam implants with a hydrophilic surface in patients with Type 2 Diabetes Mellitus in single-unit reclamations, contrasted and a sound benchmark group surveyed utilizing the glycosylated haemoglobin HbA1c test. They closed patients with glycemic control display comparable results to solid people concerning the examined boundaries. Considering these discoveries, the titanium-zirconium composite small-diameter implants can be utilized in Type 2 Diabetics (Gamborena and Blatz, 2014).

Herrmann *et al.* (2016) assessed implant endurance of diminished distance across implants contrasted with normal breadth implants. Implant endurance rate, reverberation recurrence examination and patient fulfilment were evaluated. Reduced-breadth implants showed high endurance rates during the period researched and speak to a persuading treatment elective. (Herrmann *et al.*, 2016).

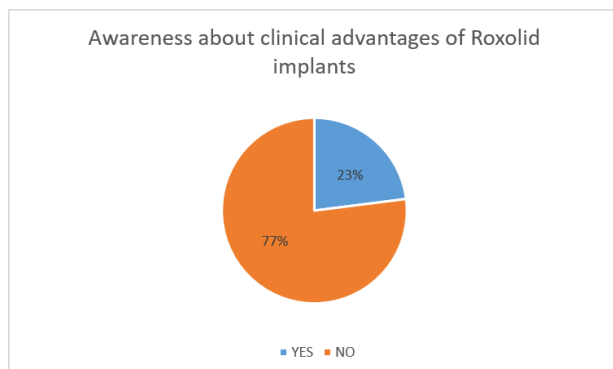
Altinci *et al.* (2016) determined the implant stability and marginal bone level (MBL) changes



**Figure 3: Awareness about contra indications of Roxolid implants**

of narrow-diameter, titanium-zirconium (TiZr) implants placed with flapless surgery and loaded immediately in the posterior region. The stability and MBL changes of TiZr implant bridges were clinically satisfactory (Altinci *et al.*, 2016).

Altuna *et al.* (2016) in their systematic review have reported narrowed diameter Ti-Zr dental implants had survival and success rates comparable to that of conventional diameter titanium implants (Altuna *et al.*, 2016).



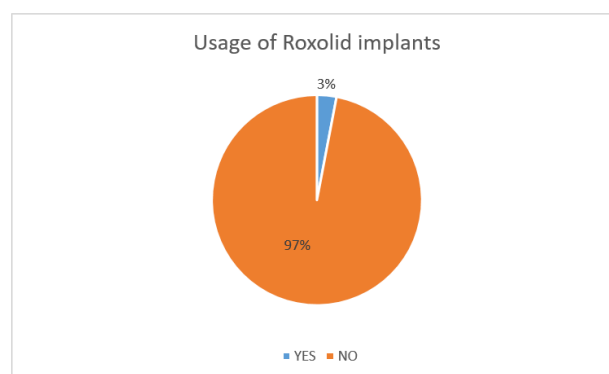
**Figure 4: Awareness about clinical advantages of Roxolid implants**

Müller *et al.* (2015) compared the 5-year survival and success rates of 3.3 mm titanium-zirconium (TiZr) alloy implants in mandibular implant overdentures. After five years, TiZr implants performed equally well (Müller *et al.*, 2015). Kopf *et al.* (2015) investigated the consequence of various surface attributes on the adsorption of the blood proteins concluded nano structured, hydrophilic Ti and Zr surfaces may accomplish better in terms of osseointegration due to constant protein adsorption and the blood components layer formation on implant surfaces (Kopf *et al.*, 2015).

Quirynen *et al.* (2015) compared crystal osseous changes, soft tissue indicators and success and survival between small-diameter implants made of tita-

nium/zirconium (TiZr) alloy and Grade IV titanium (Ti) in mandibles restored with overdentures. After three years, similar outcomes were found between Ti Grade IV and TiZr implants (Quirynen *et al.*, 2015).

Al-Nawas *et al.* (2012) studied survival and success of narrow diameter ( 3.3 mm) TiZr alloy implants for two years in. TiZr implants displayed superior survival and success with minimum bone loss up to 2 years in dental practice. (Al-Nawas *et al.*, 2012). Chiapasco *et al.* observed titanium-zirconium alloy implants were dependable in horizontally deficient osseous ridges(19). Roxolid implants evoked the higher level of osteogenic factor discharged from Mesenchymal Stem Cells, and anti-inflammatory factors release from macrophages (Reis *et al.*, 2019).



**Figure 5: Usage of Roxolid Implants**

Roxolid narrow-diameter implants made from this new Titanium -Zirconium alloy, with excellent biocompatibility properties is a dependable management option to restore areas with the amount of inter radicular space. However, the awareness about Roxolid implant systems was moderate among dental students.

The clinical advantages of Roxolid implants include the versatility of placement in both small and adequate bone width edentulous spaces, placement in severely resorbed ridges owing to their shorter height, excellent primary stability, minimally invasive surgery, faster Osseointegration and healing and increased resistance against peri-implantitis. Hence, clinicians can prefer these implants for suitable indications and thus enhance quality prosthetic care.

## CONCLUSION

The awareness about Roxolid implant systems was moderate among dental students. Hence, more intensive educational and awareness programs need to be initiated to improve the knowledge and application of Roxolid implants in clinical practice.

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## Conflict of Interest

The authors declare that they have no conflict of interest for this study.

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