

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 10 questions based on the knowledge and awareness about Roxolid implant system among dental college students. Questionnaires were circulated through an online website survey planet. The questions explored the awareness on using Roxolid implants, their indications, contraindications and clinical advantages. After the responses were received from 100 participants, data was collected and analysed. 37% are aware about 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.

Keywords: Awareness, Roxolid implants, dental students

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

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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 are 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 aim to assess the awareness about roxolid implants among dental students.

Materials And Method

This was a questionnaire based cross sectional type of survey involving 100 dental college students in Chennai. A self designed questionnaire contains 10 questions based on the knowledge and awareness about Roxolid implant system among dental college students. Questionnaires were circulated through an online website survey platform. The questions explored the awareness on using Roxolid implants, their indications, contraindications and clinical advantages. After the responses were received from 100 participants, data was collected and analysed.

Results

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

Fig 1: Awareness about Roxolid implants

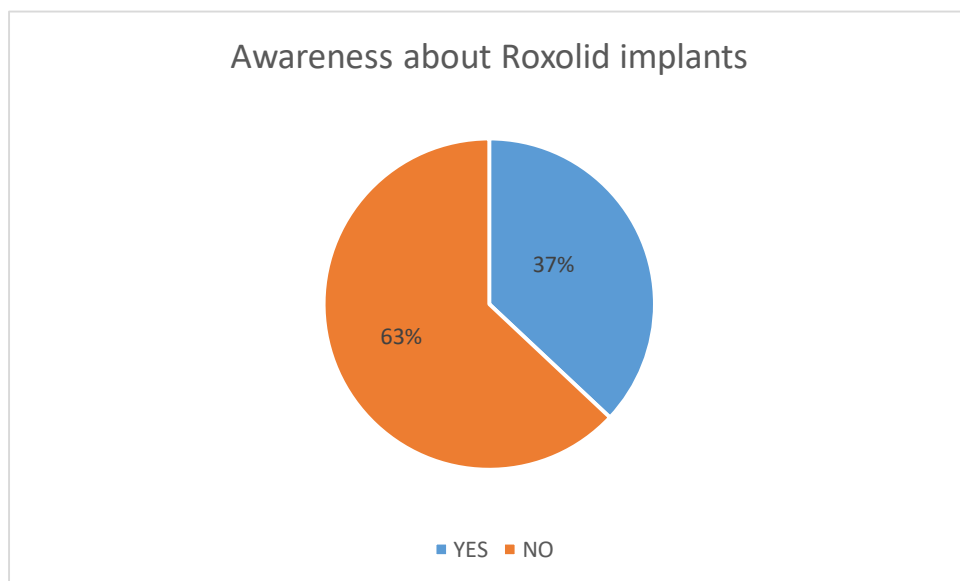


Fig 2: Awareness about indications of Roxolid implants

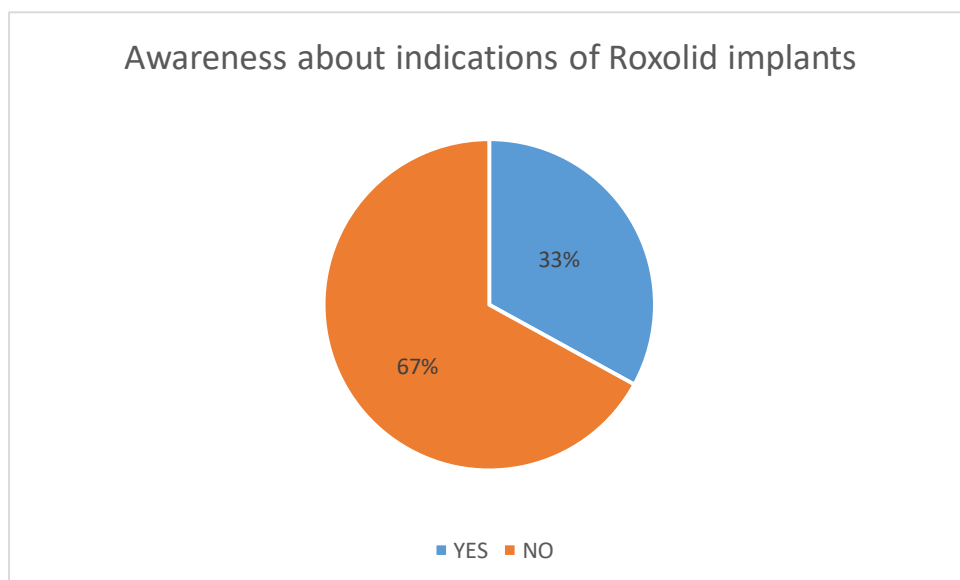


Fig 3: Awareness about contra indications of Roxolid implants

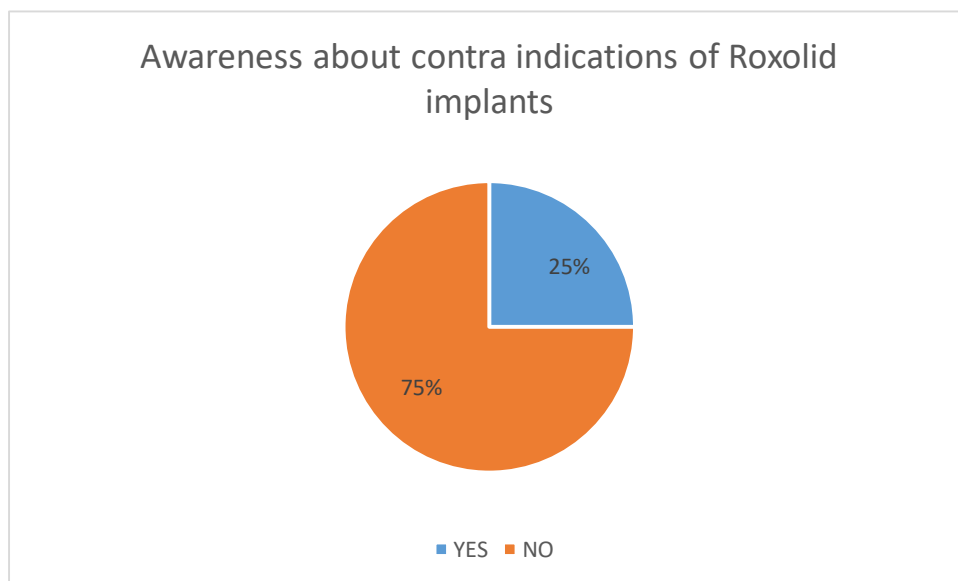


Fig 4: Awareness about clinical advantages of Roxolid implants

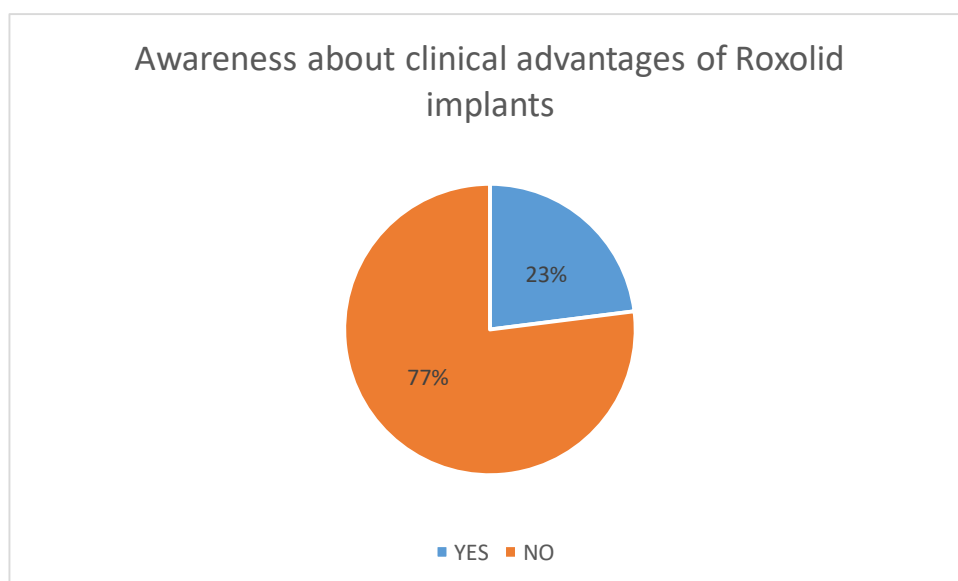
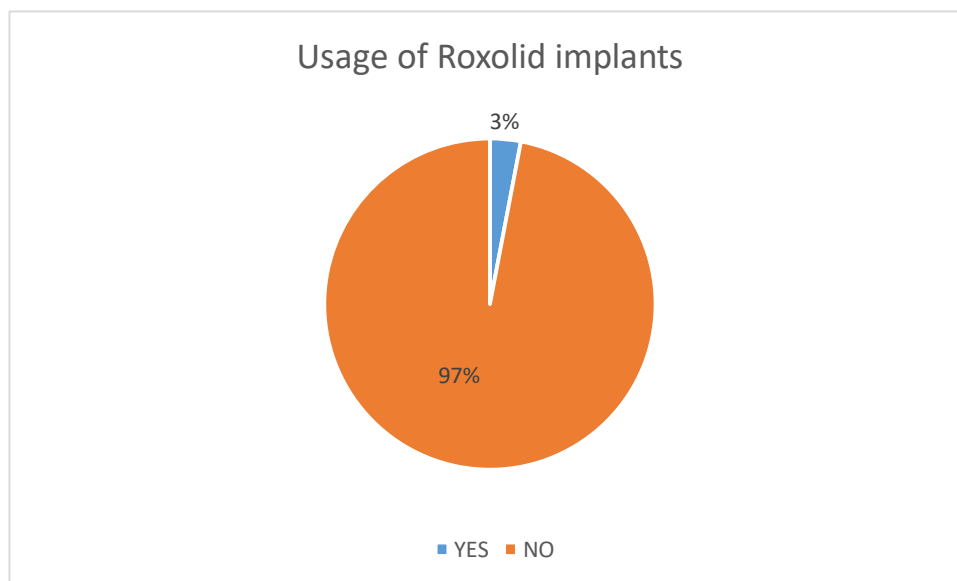


Fig 5: Usage of Roxolid implants



Discussion

There are considerable literature evidence supporting the Ti-Zr Roxolid implants. Sikora et al 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 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 3 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 3 and a month and a half of osseointegration. (Brizuela-Velasco et al., 2017).

Cabrera-Domínguez et al 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 hemoglobin 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 & Blatz, 2014).

Herrmann J et al assessed implant endurance of diminished distance across implants contrasted with normal breadth implants. Implant endurance rate, reverberation recurrence examination and patient fulfillment 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 determined the implant stability and marginal bone level (MBL) changes 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 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](#)).

Muller et al compared the 5-year survival and success rates of 3.3 mm titanium-zirconium (TiZr) alloy implants in mandibular implant overdentures. After 5 years, TiZr implants performed equally well ([Müller et al., 2015](#)). Kopf et al investigated the consequence of various surface attributes on the adsorption of the blood proteins concluded nanostructured, hydrophilic Ti and TiZr 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 compared crestal osseous changes, soft tissue indicators and success and survival between small-diameter implants made of titanium/zirconium (TiZr) alloy and Grade IV titanium (Ti) in mandibles restored with overdentures. After 3 years, similar outcomes were found between Ti Grade IV and TiZr implants ([Quirynen et al., 2015](#)).

Al-Nawas et al studied survival and success of narrow diameter (3.3 mm) TiZr alloy implants for 2 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](#)).

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

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