

Awareness about Oral Anticoagulants during Dental Extraction among Dental Students

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Abstract: ***Introduction:** Oral anticoagulants are commonly prescribed medications for preventing and treating thromboembolic disorders. Dental extractions pose a potential risk of bleeding complications in patients taking these medications. The objective of this study was to assess the knowledge of dental students regarding the management of patients on oral anticoagulants during dental extractions. **Methods:** A cross-sectional survey was conducted among dental students in a private dental college. A structured questionnaire was designed to evaluate the knowledge of participants regarding oral anticoagulant medications and management strategies during dental extractions. **Results:** In this study, a total of 300 dental students actively participated, contributing valuable insights and data to the research. Results indicated a positive level of awareness among dental students, with 85.4% demonstrating a basic understanding of anticoagulation's definition. Additionally, 72.3% correctly identified aspirin as a commonly prescribed anticoagulant, and 93.7% reported consulting with a cardiologist before stopping anticoagulant medication, emphasizing the importance of collaborative care. **Conclusion:** The study highlighted the overall satisfactory level of knowledge among dental students regarding oral anticoagulant management during dental extractions. However, areas for improvement were identified. On-going education and training for dental students in this domain are crucial. Targeted interventions should address misconceptions about commonly prescribed anticoagulants and reinforce the recommended timing for discontinuing anticoagulant therapy before dental procedures. Enhancing dental students' knowledge will promote safe and effective management of patients on oral anticoagulants, ultimately leading to improved patient outcomes and the delivery of high-quality dental care.*

Keywords: Dental Students, Oral Anticoagulants, Bleeding Risk, Dental Extractions, Knowledge Gap, Management Strategies

1. Introduction

Oral anticoagulants are commonly prescribed medications used to prevent or treat various medical conditions such as atrial fibrillation, deep vein thrombosis, and pulmonary embolism.¹ These medications play a crucial role in reducing the risk of blood clots and their associated complications. However, when patients on oral anticoagulants require dental extractions or other invasive dental procedures, there is a need for careful management to balance the risk of bleeding with the necessity of preventing thromboembolic events.² The knowledge and understanding of dental students regarding the management of patients on oral anticoagulants during dental extractions are crucial for ensuring patient safety and minimizing potential complications.³ It is essential for dental students to be well-informed about the different types of oral anticoagulants, their mechanisms of action, and their potential interactions with dental procedures. While some studies have investigated the knowledge and practices of dentists or oral surgeons regarding anticoagulant management during dental procedures, there is limited research specifically focusing on the knowledge of dental students in this area.^{4, 5} Understanding the level of knowledge, awareness, and confidence of dental students in managing patients on oral anticoagulants during dental extractions can help identify areas of improvement and guide the development of educational interventions. This study aims to assess the knowledge of dental students regarding oral anticoagulant management during dental extractions. By evaluating their

understanding of different oral anticoagulants, knowledge of bleeding risks, familiarity with management protocols, and awareness of evidence-based guidelines, this research seeks to provide valuable insights into the educational needs of dental students. Ultimately, the findings from this study may contribute to enhancing the training and education of dental students, ensuring safe and effective management of patients on oral anticoagulants during dental procedures.

2. Materials and Methods

The questionnaire survey was conducted among dental students in a private dental college, Chennai. The study included about 300 participants consent was obtained. A structured questionnaire [TABLE 1] consisting of 15 questions pertaining to Knowledge of Dental Students about Oral Anticoagulants during Dental Extractions were distributed via Google forms and circulated through social media platforms. The data obtained was transferred to excel sheet, to analyse the data PPSPP 3.0 software was used. Any p-value less than 0.0001 was considered statistically significant.

3. Results

In total 300 dental students participated in our study, 43.8% [146] were house surgeons, 24.6% [89] were 3rd year students, 16.9% [38] were 4th year students followed by 14.6% [26] were postgraduate students. The majority of dental students (85.4%) demonstrated awareness of the

definition of anticoagulation, indicating a basic understanding of the concept. A significant proportion of dental students (72.3%) identified aspirin as the commonly prescribed anticoagulant. Encouragingly, a high percentage of dental students (93.7%) reported consulting with a cardiologist before stopping anticoagulant medication, highlighting their recognition of the importance of collaborative care and appropriate medical guidance. The majority of dental students (63.2%) correctly identified anticoagulants as blood thinners that inhibit the coagulation of blood, showing a good understanding of the primary mechanism of action. A significant proportion of dental students (79.2%) were aware of the recent guideline recommendations regarding the management of patients on anticoagulant agents before dental procedures. This indicates their awareness of evidence - based practices and guidelines. A large majority of dental students (90.8%) acknowledged that blood thinners can affect tooth extraction, while a substantial proportion (90%) recognized that anticoagulants can impact wound healing. This demonstrates a good understanding of the potential effects of anticoagulants on dental procedures and healing processes. About two - thirds of dental students (65.4%) correctly identified the current recommended dose of aspirin in adults as 150mg orally. A considerable number of dental students (38.5%) reported stopping blood thinners 3 - 5 days before tooth extraction. However, it is worth noting that a majority (58%) correctly stated that anticoagulants should be stopped to reduce the risk of thromboembolism and prevent excessive bleeding. Approximately 60% of dental students recognized that oral anticoagulants affect Factor X, indicating a fair understanding of the specific clotting factor affected by these medications. The majority of dental students (86.9%) identified bleeding as the common complication of anticoagulation therapy during extraction. Additionally, a significant proportion (76.2%) correctly stated that aspirin is used for both tooth and muscle pain. Furthermore, a majority (76.6%) correctly listed asthma, salicylate intolerance, and bleeding as side effects of aspirin.

4. Discussion

The study aimed to assess the level of knowledge and understanding among dental students regarding the management of patients on oral anticoagulants during dental extractions. By evaluating various aspects such as awareness of anticoagulation, knowledge of commonly prescribed anticoagulants, familiarity with guidelines, and understanding of the impact on dental procedures and wound healing, and awareness of potential complications and side effects, the study sought to identify areas where educational interventions might be needed. The results of the study provide valuable insights into the knowledge of dental students in this specific area. Overall, the findings indicate a reasonably good level of awareness and understanding among the participants, but also highlight areas that require further attention. The study found that a significant majority of dental students were aware of the definition of anticoagulation and recognized anticoagulants as blood thinners that inhibit the coagulation of blood. This demonstrates a fundamental understanding of the concept, which is essential when managing patients on oral anticoagulants during dental procedures. However, the study

also identified some areas where there may be room for improvement. While a majority of dental students correctly identified aspirin as a commonly prescribed anticoagulant, it is worth noting that aspirin is an antiplatelet medication rather than a true anticoagulant. This highlights the need for further clarification and education on the different types of oral anticoagulants. Another important finding is that a significant proportion of dental students reported consulting with a cardiologist before stopping anticoagulant medication which was higher when compared to the study by Martínez - Beneyto, Y., et al and Altaf Hussain et al [66%].^{6, 7}, which was also similar in a study by Rashid K Ibadah et al [71%].⁸ This reflects an understanding of the importance of interdisciplinary collaboration and seeking appropriate medical guidance in managing patients on oral anticoagulants. The study also revealed that a substantial number of dental students were aware of the recent guidelines recommendations regarding the management of patients on anticoagulant agents before dental procedures. This indicates their familiarity with evidence - based practices and the importance of following guidelines for safe patient care. Regarding the impact of anticoagulants on dental procedures, the majority of dental students recognized that blood thinners can affect tooth extraction and wound healing. This awareness is crucial for planning and managing dental procedures in patients on oral anticoagulants, ensuring both patient safety and successful outcomes. In the study by Altaf Hussain et al., the percentage of respondents who wanted to stop antiplatelet or anticoagulant drugs before tooth extraction was reported as 77.9%.⁷ However in our study there were some areas where misconceptions or gaps in knowledge were observed., a significant proportion of dental students did not accurately identify the recommended timing for discontinuing anticoagulants before tooth extraction. This emphasizes the need for further education and clarification on the appropriate management protocols, however the studies by Chinnaswami et al and Albdulkarim et al showed promising results in this aspect.^{9, 10} Overall, the study provides valuable insights into the knowledge of dental students regarding oral anticoagulant management during dental extractions. The findings highlight both areas of strength and areas that require improvement in their understanding of anticoagulation therapy. These results can inform the development of targeted educational interventions and reinforce the importance of ongoing education and training in this critical aspect of dental care.

5. Conclusion

In conclusion, our study on the knowledge of dental students regarding oral anticoagulant management during dental extractions provides valuable insights into their understanding of this critical aspect of dental care. Overall, the findings demonstrate a reasonable level of awareness and knowledge among the participants, with room for improvement in certain areas. Overall, the findings of our study underscore the importance of ongoing education and training for dental students in oral anticoagulant management. The results provide a foundation for developing targeted educational interventions to address specific areas of improvement, such as clarifying misconceptions regarding commonly prescribed

anticoagulants and reinforcing understanding of the recommended timing for discontinuing anticoagulant therapy before dental procedures. By enhancing the knowledge and understanding of dental students, we can promote the safe and effective management of patients on oral anticoagulants during dental extractions, ultimately improving patient outcomes and ensuring the delivery of high - quality dental care.

References

[1] Belov, Iu V., and I. A. Vinokurov. "Anticoagulants in surgical practice. " *Khirurgiia* 5 (2013): 45 - 48.

[2] Rodríguez Cabrera, Manuel Alejandro, et al. "Extractions without eliminating anticoagulant treatment: a literature review. " (2011).

[3] Babaji P, Rishal Y. Clinical evaluation of role of dual antiplatelet therapy on bleeding after dental extraction. *Contemp Clin Dent*.

[4] Lillis T, Ziakas A, Koskinas K, Tsirlis A, Giannoglou G. Safety of dental extractions during uninterrupted single or dual antiplatelet treatment. *Am J Cardiol*.2011; 108: 964–7.

[5] Kumar S. Knowledge, attitude and practices of dental students toward dental management of patients on antiplatelet therapy. *Asian J Pharm Clin Res*.2016; 9: 270–6.

[6] Martínez - Beneyto, Y., et al. "Dental Students' Knowledge of and Attitudes Toward Anticoagulation Dental Treatment: Assessment of a One - Day Course at the University of Murcia, Spain. " *Journal of Dental Education* 76.4 (2012): 495 - 500.

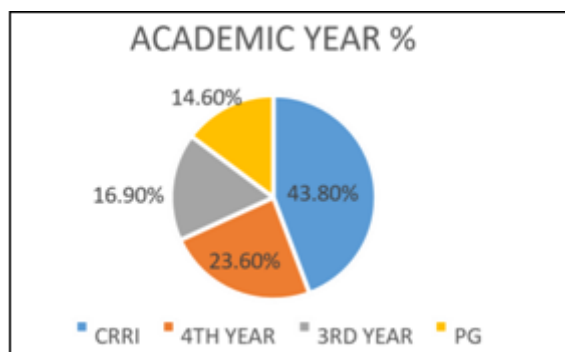
[7] Altaf Hussain Shah, Hesham Saleh Khalil, Faleh Ali Alshahrani, Soban Qadir Khan, Nasser Raqe AlQthani, Ishfaq Ali Bukhari, Mohammed Zaheer Kola, Knowledge of medical and dental practitioners towards dental management of patients on anticoagulant and/or

anti - platelet therapy, *The Saudi Journal for Dental Research*, Volume 6, Issue 2, 2015, Pages 91 - 97, ISSN 23520035

[8] Ibdah RK, Rawashdeh SI, Harahsheh E, Almegdadi A, Al Ksasseh A, Alrabadi N. The Knowledge and Perception of Antiplatelet and Anticoagulant agents among Dentists in Northern Jordan. *J Int Soc Prev Community Dent*.2020 Sep 28; 10 (5): 597 - 604. doi: 10.4103/jispcd. JISPCD_70_20. PMID: 33282769; PMCID: PMC7685271.

[9] Chinnaswami R, Bagadia RK, Mohan A, Kandaswamy E, Chandrasekaran D. Dentists' Knowledge, Attitude and Practice in Treating Patients Taking Oral Antithrombotic Medications A Survey. *J Clin Diagn Res*.2017 Jan; 11 (1): ZC88 - ZC91. doi: 10.7860/JCDR/2017/23648.9236. Epub 2017 Jan 1. PMID: 28274053; PMCID: PMC5324504.

[10] Alabdulkarim, M. N., & Ramalingam, S. (2022). Knowledge and attitude of dental students in treating patients on antiplatelet and/ or anticoagulant medications. *International Journal Of Community Medicine And Public Health*, 9 (2), 596–602.



Questionnaire:

Define anticoagulation	Process of hindering the clotting of blood
	Process that thickens the blood
	Neither A nor B
	Both A and B
Commonly prescribed anticoagulant?	Heparin
	Aspirin
	Edoxaban
	Rivaroxaban
Do you consult with cardiologist before stopping anticoagulant medication?	Yes
	No
Which of the following terms are true about anticoagulant?	Anticoagulant also known as blood thinners
	Inhibits the coagulation of the blood
	Both A and B
	Neither A nor B
Are you aware of the recent guidelines recommendation regarding the management of patient on anticoagulant agent before dental procedure?	Yes
	No
Does the blood thinner affects the tooth extraction?	Yes
	No
Does anticoagulant affects the wound healing?	Yes
	No
Current dose of aspirin in adults	150 mg orally
	15 mg orally
	5 mg orally
	1 mg orally
How long do you have to stop blood thinner before tooth extraction?	3 - 5 days

	1 - 2 days
	5 - 7 days
	1 weeks - 2 weeks
Why anticoagulant should be stopped before surgery?	Increase the amount of bleeding with invasive procedure
	Increase thromboembolic risk
	Decrease thromboembolic risk
	Both A & B
Which clotting factor is affecting by oral coagulants?	Factor X
	Factor XII
	Factor IX
	Factor V
Common complications of anticoagulation therapy during extraction	Bleeding
	Dry socket
	Pain
	Swelling & Inflammation
Uses of aspirin	Muscle pain
	Tooth pain
	Both A and B
	None of the above
Contraindications of aspirin therapy	Active peptic ulcer
	Bleeding disorders
	Thrombocytopenia
	All the above
Side effects of aspirin	Asthma
	Salicylate intolerance
	Peptic ulcer
	All the above

Question	Options	N%	Chi - Square	P - Value
Define anticoagulation	Process of hindering the clotting of blood	85.40%	192.72	<0.0001
	Process that thickens the blood	8.50%		
	Neither A nor B	4.60%		
	Both A and B	1.50%		
Commonly prescribed anticoagulant?	Heparin	20.80%	124.96	<0.0001
	Aspirin	72.30%		
	Edoxaban	1.50%		
	Rivaroxaban	5.40%		
Do you consult with cardiologist before stopping anticoagulant medication?	Yes	93.10%	73.96	<0.0001
	No	6.90%		
Which of the following terms are true about anticoagulant?	Anticoagulant also known as blood thinners	21.50%	81.84	<0.0001
	Inhibits the coagulation of the blood	10.80%		
	Both A and B	63.10%		
	Neither A nor B	4.60%		
Are you aware of the recent guidelines recommendation regarding the management of patient on anticoagulant agent before dental procedure?	Yes	79.20%	33.64	<0.0001
	No	20.80%		
Does the blood thinner affects the tooth extraction?	Yes	90.80%	67.24	<0.0001
	No	9.20%		
Does anticoagulant affects the wound healing?	Yes	90%	64	<0.0001
	No	10%		
Current dose of aspirin in adults	150 mg orally	65.40%	91.12	<0.0001
	15 mg orally	20.80%		
	5 mg orally	11.50%		
	1 mg orally	2.30%		
How long do you have to stop blood thinner before tooth extraction?	3 - 5 days	38.50%	23.76	<0.0001
	1 - 2 days	27.70%		
	5 - 7 days	27.70%		
	1 weeks - 2 weeks	6.20%		
Why anticoagulant should be stopped before surgery?	Increase the amount of bleeding with invasive procedure	36.20%	70.56	<0.0001
	Increase thromboembolic risk	5.60%		
	Decrease thromboembolic risk	4.40%		
	Both A & B	53.80%		
Which clotting factor is affecting by oral	Factor X	59.20%	68.48	<0.0001

coagulants?	Factor XII	18.50%		
	Factor IX	18.50%		
	Factor V	3.80%		
Common complications of anticoagulation therapy during extraction	Bleeding	86.90%	205.52	<0.0001
	Dry socket	7.70%		
	Pain	3.80%		
	Swelling & Inflammation	1.50%		
Uses of aspirin	Muscle pain	16.80%	55.28	<0.0001
	Tooth pain	10.80%		
	Both A and B	56.90%		
	None of the above	15.40%		
Contraindications of aspirin therapy	Active peptic ulcer	8.50%	144.72	<0.0001
	Bleeding disorders	10%		
	Thrombocytopenia	4.60%		
	All the above	76.90%		
Side effects of aspirin	Asthma	8.50%	144.72	<0.0001
	Salicylate intolerance	10%		
	Peptic ulcer	4.60%		
	All the above	76.90%		