

Tunisian Dentist's Knowledge and Attitudes toward Patients Undergoing Antithrombotic Therapy : A Cross Sectional Study

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Abstract:-

➤ Introduction

Invasive dental procedures, such as extractions, pose a significant bleeding risk for patients undergoing antithrombotic agents. Practitioners must navigate the delicate balance between managing hemorrhagic risks and preventing thromboembolic events in accordance with established treatment guidelines.

➤ Objectives

The aim of the study was to evaluate the knowledge and attitudes of Tunisian dentists towards patients undergoing anticoagulant and antiplatelet therapy.

➤ Materials and Methods

A cross-sectional study was conducted using an online survey consisting of 25 questions, which was completed by 363 participants.

➤ Results

A total of 363 dentists were included in the study, with an average age of 31.1 ± 8 years. Participants demonstrated a knowledge accuracy rate of approximately 67%. The study highlighted a lack of knowledge regarding the management of patients on direct oral anticoagulants, though recent graduates demonstrated a higher rate of appropriate clinical attitude.

➤ Discussion

The study showed some gaps in the training of Tunisian dentists regarding the management of these patients, highlighting the need to promote the latest recommendations, especially among older dentists.

Keywords:- Antithrombotic Agent, Direct Oral Anticoagulant, Clinical Situation, Dental Procedure

I. INTRODUCTION

Antithrombotic agents, including antiplatelet drugs and anticoagulants, are widely prescribed to prevent and treat thromboembolic pathologies in patients with cardiovascular conditions, such as atrial fibrillation, deep vein thrombosis, or coronary artery disease [1]. These therapies are essential for reducing the risk of stroke, myocardial infarction, and other serious complications. However, they also constitute a significant challenge in dental care due to the increased risk of bleeding during and after invasive dental treatments. Practitioners must balance between the management of hemorrhagic risk and the prevention of thromboembolic risk inherent in patients on antithrombotic treatment [2]. Inadequate knowledge or misconceptions may lead to inappropriate modifications of antithrombotic therapy, such as unnecessary discontinuation or incorrect management strategies, which could result in either excessive bleeding or thromboembolic complications. Despite the critical importance of this issue, there is limited data regarding the knowledge and attitudes of dentists, especially in Tunisia, toward managing patients undergoing antithrombotic therapy. Understanding these knowledge gaps and attitudes is crucial for improving patient safety and guiding the development of targeted educational programs. The aim of our study was to assess the knowledge and attitudes of Tunisian dentists regarding the management of patients undergoing antithrombotic therapy. By identifying areas where knowledge is lacking or attitudes are inappropriate, the study was seeking to contribute to better patient outcomes and safer dental practices in Tunisia.

II. METHODS

A. Study design

A cross-sectional study was conducted to evaluate tunisian dentist's knowledge and attitudes in managing dental patients on anticoagulants and antiplatelet agents.

B. Study setting and participants

This study was based on an online questionnaire distributed in private dentist's groups across various social media platforms from June 2023 to December 2023, with data collection taking place from 4th to 12th Junary. The survey was conducted among tunisian dentists practicing in both private and public sectors in Tunisia encompassing both urban and rural areas. General practionners, specialists, residents, interns and freshly graduated dentists were included.

C. Variables

The survey was divided into four sections and 25 questions (annexe 1) including :

- *Section1* : participant's epidemiological characteristics.
- *Section2* : evaluation of knowledge and basic concepts such as adherence to up-to date recommendations ,different types of antithrombotics known including direct oral anticoagulants (DOACs), knowledge of biological tests requested before performing a dental procedure with hemorrhagic risk and the frequency of managing patients on antithrombotics in daily practice.
- *Section 3* : evaluation of clinical attitudes : focused on the management of patients on undergoing antiplatelet agents and anticoagulants (Sintrom, heparin, DOACs), where the participant was faced with patients having different medical histories, varying INR values, and different procedures to perform. The participant had to choose between referring the patient to a specialist or hospital , stopping the anticoagulant treatment, switching to heparin, and finally maintaining the treatment and performing the procedure. Correct responses were based on the recommendations of the French Society of Oral Surgery (SFCO)[3], the American Dental Association (ADA)[4], and the American Heart Association [5].
- *Section 4*: practitioner's attitudes towards ensuring hemostasis and managing hemorrhagic complications .

D. Sample size

EPI Info Version 6 software was used. The population size was estimated based on the 2021 Tunisian health map of 4,400 dentists and was increased to 5,000 to account for dental interns and residents who have not yet completed their theses. The expected percentage of adequate or insufficient knowledge was estimated to be 50% (the prevalence that provides the largest sample size). For a risk (alpha) of 5% and

precision (i) of 5%, the necessary sample size was calculated to be 357.

E. Data analysis

Statistical analysis was conducted using SPSS statistics 23.0. Descriptive analysis was run, percentage and frequencies were reported. For quantitative variables such as age, we calculate median and range. Khi 2 test is used to determine the association between statisticly dependent variables, such as the relationship between dentists' level of experience and their attitudes toward managing patients on antithrombotic therapy . The statistical significance was set up with a typical significance level at $p < 0.05$.

III. RESULTS

A. Participant's Data Analysis:

A total of 363 participants responded to the online questionnaire in a period between june 2023 and december 2023. The average age of participants was 31.1 ± 8 years, ranging from 23 to 61 years. Among the participants, 52.6% were practicing dentists, 26.4% were dental interns, and approximately 10.7% were dental residents. Only 1% of participants were university hospital dentists. The majority of participants in the study had less than 5 years of experience with only 12.4% having more than 15 years of practice.

B. Descriptive Analysis :

The study showed that 22.3% rated their knowledge as good, and only 4.4% as excellent, while the majority considered their knowledge to be average (63.1%). To follow the new recommendations, participants primarily rely on congresses and conferences (36%), scientific journals and reviews (20.2%), exchanges among peers (20.2%), and university courses (18.1%). All dentists reported being aware of antiplatelet agents, while 80.1% were knowledgeable about anticoagulants. However, approximately one-third of participants reported not knowing the direct oral anticoagulants.

Only 22 participants, (6.1%) stated they did not manage patients on antithrombotic therapy. Conversely, 169 participants, totaling 46.6%, treated at least one patient per month.

The majority of participants (84.8%) correctly responded regarding the necessity of checking PT/INR before managing a patient on vitamin k antagonists (VKAs) in oral surgery and 62.6% stated they do not request laboratory analysis for patients on antiplatelet agents.

Less than half of the participants (43.3%) answered correctly regarding the necessity or not of a laboratory examination before managing a patient on DOACs in oral surgery.

C. Clinical Situations :

- Patient on Sintrom with an INR of 2.8 requiring a simple extraction: more than half of the participants demonstrated an appropriate attitude in this situation.
- Patient on Sintrom with deep vein thrombosis requiring pre-implant lateral sinus lift surgery: A large majority (82.1%) of participants chose to refer the patient. Among those who opted to perform the surgery, only 6.3% selected the correct option of bridging with heparin.
- Patient on Aspégic (100mg/day) requiring the extraction of two adjacent teeth: Approximately 80% of respondents had the correct approach in this clinical situation by

maintaining the antiplatelet therapy and proceeding with the extractions.

- Patient with atrial fibrillation on Apixaban requiring the surgical extraction of an impacted mandibular wisdom tooth: A majority of participants (78.1%) preferred to refer the patient to a specialist or a hospital service. Less than 3% responded correctly by indicating the cessation of anticoagulation before proceeding with the extraction.
- Hemostasis technique to use after a dental extraction for a patient on antithrombotic therapy: Slightly less than half of the participants used simple compression .

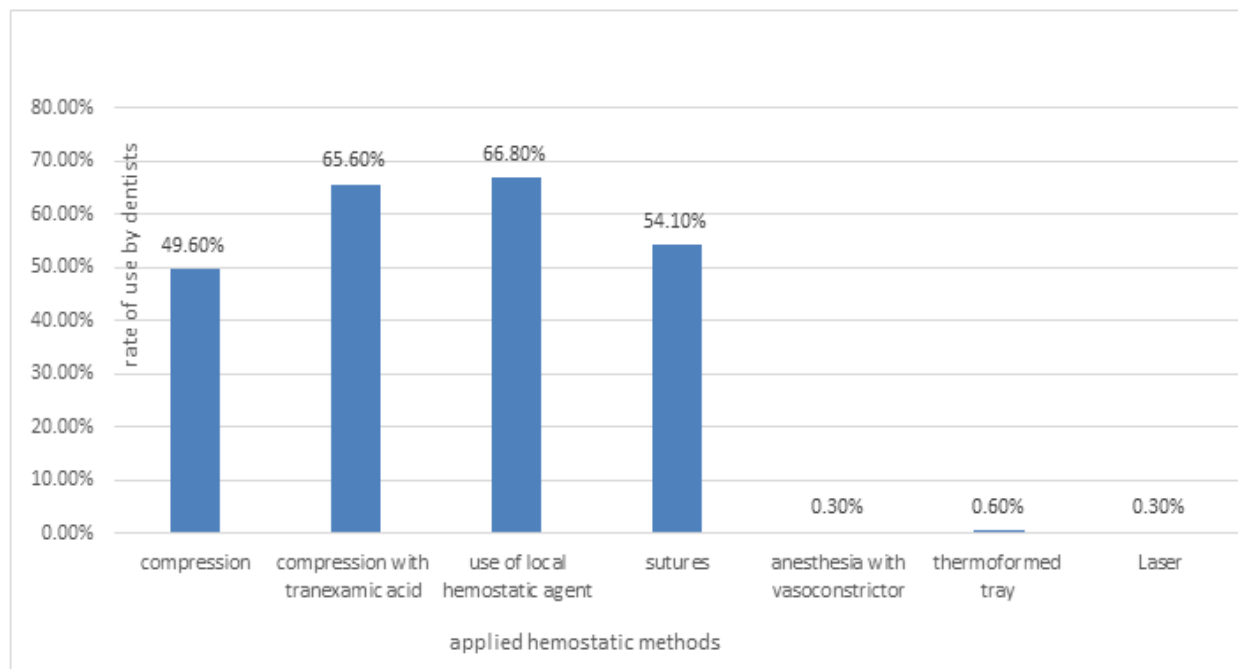


Fig 1 : Different Hemostatic Techniques Used by Tunisian Dentists

D. Statistical Analysis :

The comparison of basic knowledge and attitudes according to years of practice revealed a statistically significant difference, with a higher rate of correct responses among practitioners with less experience (less than 10 years) when it came to knowing the necessary blood tests according to the encountered antithrombotic agent.

According to the type of practice the comparison showed a slight superiority in the rates of correct responses among interns, especially residents compared to the rest of the sample, with a statistically significant difference. However, there was no significant difference in the management of patients taking DOACs across all types of practice (table 1) .

Table1: Comparison of Accepted Practices for Patients on DOAs (Requiring Surgical Extraction of an Impacted Mandibular Wisdom Tooth) According to Experience, Type of Practice, Setting, and Region of Practice

	ACCEPTED ATTITUDE*		REFERRED PATIENT		INACCEPTED ATTITUDE*		P-VALUE
	n (%)		n (%)		n (%)		
<u>EXPERIENCE</u>							0,009
≤5	3(1,4)		159(72,3)		58(26,4)		
]5-10]	0(0,0)		37(77,1)		11(22,9)		
]10-15]	2(5,7)		25(71,4)		8(22,9)		
>15	5(11,9)		26(61,9)		11(26,2)		
<u>TYPE OF PRACTICE</u>							0,785
INTERNS	1(1,1)		61(69,3)		26(29,5)		
RESIDENTS	2(5,1)		27(69,2)		10(25,6)		
PRIVATE PARTICE	6(3,2)		136(73,1)		44(23,7)		
UNIVERSITARY HOSPITAL	0(0,0)		4(100,0)		0(0,0)		
PUBLIC HEALTH	1(3,4)		19(65,5)		9(31,0)		
<u>PRACTICE ENVIRONMENT</u>							0,289
URBAIN	9(3,3)		187(69,3)		74(27,4)		
RURAL	1(1,5)		52(78,8)		13(19,7)		

*Accepted attitude: stop the treatement and perform the surgery

*Inaccepted attitude: maintain the treatement and perform the surgery / bridging with heparin/ No response

IV. DISCUSSION

This Tunisian cross sectionnal comparative study was conducted to assess the knowledge and attitudes of tunisian dentists towards patients undergoing anticoagulants and antiplatelet therapy . Our survey showed that 91.4% of the participants reported treating patients with antithrombotic therapy at different frequencies. This result highlights the importance of the topic for identifying the appropriate management of patients on antithrombotics.

Concerning basic knowledge , correct response rate was 67.7%, a relatively satisfactory rate comparable to that of a similar French study (70% of correct answers) [6]. However, it is worth noting that only 18% of our recently graduated participants with mean age [25-30] reported acquiring their knowledge through university courses , highlighting a lack of implementation of taught knowledge after university education and prompting the need for better integration of active learning methods into clinical settings [7].

Management of overall clinical situations was satisfactory as we noted a low rate of unacceptable attitudes regarding antiplatelet agents and vitamin k antagonists except for patients on DOACs. This was particularly evident among dental specialists, including residents and hospital-university dentists, who demonstrated a high level of expertise. Their proficiency suggests that specialized training and experience

contribute significantly to clinical competence. Additionally, our analysis did not reveal any statistically significant differences in knowledge or practice based on geographic region or the practice environment, whether urban or rural. This finding indicates that the quality of care is consistent across different settings, which is reassuring in terms of uniformity in tunisian patient's care. Nonetheless, gaps in knowledge related to DOACs were widespread and not confined to a particular area or practice type.

In fact, DOACs prescription progressively increased in recent years, replacing VKAs for certain indications[8]. When managing patients on DOACs during oral surgery, no biological tests are necessary before performing a procedure with an hemorrhagic risk [9]. Except for specialists in oral medicine and surgery, respondents in our study demonstrated a clear lack of knowledge on this point, as more than half of the respondents believed that it is necessary to request a biological test for patients on DOACs and showed an incorrect attitude regarding the proposed clinical situation , which was relatively low compared to the French study, where 75% of participants responded correctly, but similar to the rate observed in a 2020 Polish study (57.53%) [10].This result could be explained by the later introduction of DOACs in Tunisia than in France and the relatively high cost compared to VKAs. In this regard, it is concerning that one third of our participants were unaware of DOACs. This significant gap in knowledge points to a broader issue of inadequate training or

exposure to these agents among healthcare practitioners. As DOACs have become increasingly common in the management of thromboembolic conditions, it is essential that practitioners must be well-versed in their use. This underscores the need for targeted educational initiatives and updated guidelines to ensure that all healthcare providers are equipped with the necessary knowledge to manage patients on DOACs effectively.

Hemorrhagic risk management among Tunisian dentists was generally satisfactory, with more than half of them effectively managing this complication using simple hemostatic measures such as local hemostatic agents, sutures and local compression with tranexamic acid. This indicates a solid understanding of fundamental techniques for controlling bleeding, which is crucial when dealing with anticoagulated patients. [11].

The limitation of this study was associated with the type of survey, including the inability to verify participant's identities and the risk of multiple submissions. Additionally, respondents may tend to overstate their professional behavior, even when aware of the questionnaire's anonymity, a phenomenon known as the Hawthorne effect which can lead to biased responses and potentially overestimated findings. [12] Generally, online surveys can also lead to selection bias, as only individuals interested in the topic are likely to respond. Additionally, older dentists with several years of experience, who may not be active on social media or comfortable with digital platforms, could be inadvertently excluded from the sample. Some clinical scenarios included procedures intended for oral surgery specialists, which may have increased the proportion of practitioners referring patients rather than managing them. This could have impacted the survey results by inflating the number of referrals, thus potentially altering the assessment of practitioners' competence in managing complex cases..

V. CONCLUSION

After a thorough analysis of our results, it became clear that disparities exist in the management of patients on antithrombotic therapy by dental practitioners in Tunisia. Adequate management of patients on vitamin K antagonists (VKAs) or antiplatelet agents was noted, with proper handling of the hemorrhagic risk. However, significant variations remain in the management approach for patients taking direct oral anticoagulants (DOACs), particularly regarding the discontinuation or modification of treatment before dental procedures.

RECOMMENDATIONS

The key highlights of our study include the increased need for continuing regular education on antithrombotic agents particularly direct oral anticoagulants to update dentist's knowledge on patient management protocols. Furthermore, our study emphasizes the importance of interdisciplinary collaboration and enhanced information exchange between dentists and other healthcare professionals involved in the care of patients receiving antithrombotic therapy. We also stress that, despite the existence of standardized protocols, their dissemination remains limited, especially among older dental practitioners.

➤ Competing Interests

Declare any competing interests here. If there are no competing interests to declare us the mention: The authors declare no competing interest.

➤ Authors' Contributions

Methodology : Ghada Bouslama.; validation : Mouaffak Chaabani and Ghada Bouslama.; formal analysis: Nour Sayda Ben Messaoud; resources: Mouaffak Chaabani.; writing original draft preparation, Ghada Bouslama; writing review and editing, Ghada Bouslama and Mouaffak Chaabani .; supervision: Lamia Oualha and Souha Ben youssef.

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