



Awareness and Perception of Dentists in Kuwait Regarding the Dental Management of Patients on Oral Antithrombotic Medications

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Abstract

Objective It is crucial that dentists are up to date on the most recent recommendations for managing patients on oral antithrombotic medications (OAMs). The current study aims to analyze dental practitioners' knowledge and practice of perioperative treatment of patients on OAM in Kuwait.

Materials and Methods The study was performed among dentists in Kuwait utilizing a structured questionnaire. The questionnaire tested their knowledge about common OAMs and their indications, the bleeding risk of specific dental procedures, as well as the dangers of stopping antithrombotic therapy. Questions regarding the practice of obtaining relevant blood investigations as well as consultations with health professionals and their current course of management pertaining to specific dental procedures were included.

Statistical Analysis The collected data were analyzed by SPSS statistical software for Windows, version 28.0 (Chicago, Illinois, United States). The Student's *t*-test was used to compare mean percentage knowledge scores. Association between independent variables (predictors) and knowledge was assessed by employing univariate and multivariate logistic regression. A *p*-value of ≤ 0.05 was considered statistically significant.

Results A majority of the dentists (60.9%) demonstrated fair knowledge. Gender, practice type, and years of experience were significantly associated with knowledge. Very few dentists knew about direct oral anticoagulants. Eighty-two (33.1%) would rely on international normalized ratio tests done within 72 hours. Sixty-six (26.6%) dentists would interrupt aspirin therapy before extensive dental scaling without a medical consult and 45 (18.1%) would ask the patient to stop warfarin 3 days before extraction of one to three teeth. For patients on aspirin or warfarin, 35.1 and 47.2% of the dentists perceived the postoperative bleeding risk after a simple extraction to be high, and 14.4 and 11.2% of the dentists considered the rethrombosis risk to be low if aspirin and warfarin were interrupted.

Conclusion In this study, the dentists demonstrate a lack of knowledge and are not clear regarding practice recommendations. Every dental care provider therefore needs to update their knowledge with the latest antithrombotic medications and their

Keywords

- dentists
- knowledge
- Kuwait
- oral antithrombotic therapy
- risk perception

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indications, when to order blood investigations and medical consult, bleeding risk associated with each dental procedure, interruption of therapy, and risk of bleeding versus rethrombosis risk.

Introduction

Oral antithrombotic medications (OAMs) are used in a wide variety of patients to prevent thromboembolic episodes.¹ Dentists, in routine practice, often encounter many of these patients who require dental procedures that may possibly lead to excessive bleeding postoperatively.²

Warfarin, a vitamin-K antagonist, and aspirin, an irreversible cyclooxygenase inhibitor, are among the well-known and most widely used antithrombotic medications that most dentists are familiar with.³ However, lately, numerous antithrombotic agents and classes of medications have been added to the list.^{4,5}

The guidelines for the dental management of these patients in the dental office are solid but still evolving.⁶ The majority of the reputable medical and dental societies and associations advise against the alteration or discontinuation of antithrombotic medications before dental procedures.^{7–9} This is due to the rare but catastrophic risk of developing thromboembolic events.^{10,11} In the event of postoperative bleeding, they advocate and support the use of local control measures in the dental office as much as possible.¹²

It is imperative that dental practitioners be familiar with the most recent recommendations in the management of patients on antithrombotic therapy. Previous studies show discrepancies in the knowledge of dentists regarding the management of patients on OAM.^{3,13–19} They also show that they are overcautious as they generally overestimate the bleeding risk during and after dental procedures.¹⁵

The aim of the current study was to assess the knowledge and practice of dental practitioners and specialists in Kuwait regarding the perioperative management of patients on OAM.

Materials and Methods

Study Design

This study was approved by the Ethics Committee of Kuwait University. The study was conducted between January and March 2022 using a structured questionnaire (► **Supplementary Appendix A**, online only).

Participants and Settings

The questionnaires were distributed among dentists working in government polyclinics and specialized dental centers. It contained mostly closed questions and focused on their knowledge and practice regarding the periprocedural management of dental patients on antithrombotic therapy. The participation was voluntary, and each dentist was given an information sheet describing the objectives of the study.

Outcomes

The outcomes of this study were knowledge levels of the dentists as well their practice and perception of risk regarding the dental management of patients on OAM. Demographic variables were considered predictors which included age group, gender, practice type, and years of experience.

Questionnaire

A structured self-administered questionnaire was used in the present study. Items were adopted after a comprehensive literature review of guidelines on dental management of patients on OAMs framed by several international dental authorities including the American Dental Association, American Academy of Oral Medicine, British Dental Society, and the Scottish Dental Clinical Effective Program (SDCEP) guidance.^{6,12,20–22} The first part of the questionnaire gathered demographic information such as gender, age, practice type, and years of practice. The next section tested the knowledge of dentists regarding the types of OAMs in current use and their indications. Knowledge regarding factors to be considered in the management of patients on OAM and the bleeding risk of specific dental procedures were also assessed.

This was followed by questions pertaining to the practice of dentists in obtaining medical histories from patients and whether they encounter patients on OAM. Information regarding the ordering of relevant blood investigations as well as obtaining professional consultations for patients on OAM were also sought. Questions regarding the dentists' course of management of patients on the common OAMs (aspirin and warfarin) pertaining to specific dental procedures were included. The dentists were also asked to indicate the perceived risks of bleeding if patients continued OAM before undergoing dental treatment, as well as the risk of rethrombosis upon discontinuation of OAM.

Sample Size Calculation

Sample size was estimated in G*Power software (latest ver. 3.1.9.7; Heinrich-Heine-Universität Düsseldorf, Düsseldorf, Germany). Using a conservative effect size of 0.2, for an error of 5% and a power of 80%, a minimum of 199 subjects would be required. This was rounded off to 250 to account for dropouts and incomplete responses.

Statistical Analysis

The collected data were analyzed by SPSS statistical software for Windows, version 28.0 (Chicago, Illinois, United States). The knowledge scores were calculated similar to a previous knowledge, attitude, and practice study.²³ Descriptive statistics was used to report the percentages and numbers of various responses. The Student's *t*-test was used to compare

mean percentage knowledge scores. For analytical statistics, association between independent variables (predictors) and knowledge was assessed by employing univariate and multivariate logistic regression to evaluate their effects after adjustment. A *p*-value of ≤ 0.05 was considered statistically significant.

Results

A total of 400 questionnaires were distributed among general dental practitioners and specialists. Two hundred and forty-eight dentists agreed to participate in the study and returned completed questionnaires (response rate of 62%). The demographic variables and the mean percentage knowledge scores of the participants are presented in ►Table 1. The overall mean percentage score of knowledge was 54.93%. The knowledge of 10.9% of the participants was good, 60.9% had fair knowledge, and 28.2% had poor knowledge.

►Table 2 shows the dentists' responses to knowledge questions. Aspirin (93.5%), warfarin (88.3%), and clopidogrel (61.3%) were the well-known OAMs. However, very few dentists knew about direct oral anticoagulants (DOACs) such as dabigatran (16.1%), rivaroxaban (16.1%), and apixaban (4.4%). A large percentage of dentists accurately estimated extractions of more than three teeth (90.7%) and flap-raising procedures (80.6%) to be associated with a high risk of bleeding. Less than 10% of the dentists classified procedures that are unlikely to cause bleeding, such as administering an inferior alveolar nerve block, restorations with supragingival margins, and root canal treatment (RCT), as high-risk dental procedures.

At the patient's first dental visit, 238 dentists (96%) obtain medical histories. Two hundred twenty-five dentists (90.7%) reported treating patients on OAM therapy, whereas 23 (9.3%) reported never encountering such patients. One hundred sixteen (46.8%) and 163 (65.7%) dentists stated that they routinely ask for blood investigations from patients on

aspirin and dual-antiplatelet therapy, respectively. In addition, 177 (71.4%) dentists reported that they routinely ask for blood investigations for patients on warfarin. One hundred seventy-five (70.6%) dentists reported that they would rely on international normalized ratio (INR) values taken within 24 hours of a dental procedure that is likely to cause bleeding. Eighty-two (33.1%) would rely on INR tests done within 72 hours, while 65 (26.2%) would consider INR levels taken earlier than 72 hours.

Regarding consultation with other medical and dental professionals, 211 (85.1%) dentists stated that they did so prior to the dental treatment of patients using antithrombotic medication. ►Fig. 1 shows whom they sought for professional advice regarding information related to the patient's antithrombotic therapy and dosage modification before dental procedures.

For patients on aspirin therapy, 66 (26.6%) dentists reported that they would interrupt the therapy before extensive dental scaling without a medical consult, and 119 (48%) would consult a physician before the extraction of more than three teeth. Regarding the dental management of patients on warfarin, 73 (29.4%) dentists would directly proceed to perform RCT without checking INR, and 45 (18.1%) would ask the patient to stop warfarin 3 days before the extraction of one to three teeth (►Table 3).

Regarding the estimated risk of postoperative bleeding after a simple tooth extraction without OAM interruption, 35.1 and 47.2% of the dentists perceived the risk to be high for patients on aspirin and warfarin, respectively (►Fig. 2). For the estimated risk of rethrombosis if OAM were discontinued, only 14.4 and 11.2% of the dentists considered it to be low for aspirin and warfarin, respectively (►Fig. 3).

Regarding the source of information related to OAMs, 204 (90.3%) respondents stated that they acquired it from dental schools, 128 (56.6%) from scientific publications, and 112 (49.6%) from continuing education (CE) courses. The vast majority of responders ($n = 184$; 81.1%) expressed interest in

Table 1 Demographic variables and mean percentage knowledge score of the dentists ($N = 248$)

	<i>n</i> (%)	Percentage knowledge score (mean \pm SD)	<i>p</i> -Value
Gender			
Female	170 (68.5)	51.1 \pm 10.72	$< 0.001^a$
Male	78 (31.5)	56.69 \pm 16.09	
Age group			
40 years and above	58 (23.4)	51.31 \pm 18.39	0.006 ^a
Below 40 years	190 (76.6)	56.04 \pm 13.41	
Practice type			
Specialists	132 (53.2)	55.54 \pm 17.95	$< 0.001^a$
General dentists	116 (46.8)	54.23 \pm 10.18	
Years of experience			
More than 8 years	195 (78.6)	54.17 \pm 15.96	$< 0.001^a$
8 years and below	53 (21.4)	57.72 \pm 9.13	

Abbreviation: SD, standard deviation.

^a $p < 0.05$.

Table 2 Number and percentage of dentists' responses to questions related to knowledge of OAM ($N = 248$)

Familiarity with names of OAMs	
Drug names	Total ($N = 248$)
Aspirin	232 (93.5)
Clopidogrel	152 (61.3)
Ticlopidine	39 (15.7)
Warfarin	219 (88.3)
Dabigatran	40 (16.1)
Rivaroxaban	40 (16.1)
Apixaban	11 (4.4)
Indications of OAM	
Condition	n (%)
Prevention of myocardial infarction	196 (79)
Prevention of deep vein thrombosis	138 (55.6)
Prevention of thrombosis in atrial fibrillation	124 (50)
Prevention of cerebrovascular accidents	117 (47.2)
Mechanical prosthetic heart valve	107 (43.1)
Prior to any major surgery	94 (37.9)
Prevention of pulmonary embolism	85 (34.3)
Prevention of sinus arrhythmia	11 (4.4)
Factors considered in management of patients taking OAM	
Factors	n (%)
Condition for which OAM is prescribed	190 (76.6)
Invasiveness of dental procedure	182 (73.4)
INR level when warfarin is used	164 (66.1)
Dose of aspirin	132 (53.2)
Prior experience with patient	80 (32.3)
Dentists who rated dental procedures as high risk	
Dental procedure	n (%)
Extraction of more than 3 teeth	225 (90.7)
Flap raising procedures	200 (80.6)
Extraction of 1–3 teeth	145 (58.5)
Subgingival scaling and root planing	96 (38.7)
Restorations with supragingival margins	21 (8.5)
Inferior alveolar nerve block	19 (7.7)
Root canal treatment	15 (6.0)

Abbreviations: INR, international normalized ratio; OAM, oral antithrombotic medication.

CE courses on dental management of patients taking antithrombotic medication.

Univariate logistic regression showed that age groups, practice type, and years of experience were significantly associated with knowledge ($p = 0.01$, $p = 0.003$, $p = 0.008$, respectively). However, when the independent variables were entered into a multivariate logistic regression model, the independent variables, gender, practice type, and years

of experience, were significantly associated with knowledge ($p < 0.001$) (► **Table 4**).

Males were more likely to give favorable answers than females (odds ratio [OR] = 9.4, 95% confidence interval [CI] 3.7–24.6). General dentists were more likely to give favorable answers than specialists (OR = 5.4, 95% CI 2.4–12). Dentists who had 8 and lesser years of experience were more likely to give favorable answers than dentists with more than 8 years of practice experience (OR = 10.1, 95% CI 3.3–13.1).

Discussion

Antithrombotic medicines are classified into several classes. In our study, most of the dentists were familiar with aspirin, clopidogrel, and warfarin, whereas relatively few identified the DOACs, which is consistent with the findings of a survey conducted in Chennai and Saudi Arabia.^{3,14} Only one-tenth of the dentists in a United Arab Emirates survey could recall any drug that may compromise hemostasis.¹³ DOACs are becoming more popular because of their rapid onset of action, short half-lives, and very few medication and dietary interactions.²⁴ Every dental care provider therefore needs to be knowledgeable about the latest antithrombotic medications.

Antithrombotic medications are critical for the prevention and treatment of several medical conditions.^{1,25} Less than half of the respondents were unaware that OAMs are indicated for the prevention of cerebrovascular accidents, pulmonary embolism, and thrombosis in atrial fibrillation as well as in patients with mechanical prosthetic valve replacement. This result is comparable to that of the study by Chinnaswami et al, in which only 30.2% of dentists responded that OAMs are indicated for cerebrovascular accidents.³

The underlying medical condition (76.6%) and the invasiveness of the dental procedure (73.4%) were cited by the dentists in this study as important factors to consider in the care of dental patients on OAM. The aforementioned factors were likewise the most frequently reported by dentists in Chennai, Tamil Nadu, India.³

The INR level is another aspect to consider, according to nearly two-thirds of respondents (66.1%) in our study. In Saudi Arabia, more than a quarter (30.8%) of the dentists mentioned that they would ask for a laboratory test prior to the commencement of any dental procedure.¹⁴ Monitoring the INR level prior to any invasive dental surgery is required to limit the risk of postoperative bleeding in warfarin patients.¹² It is generally agreed that the administration of warfarin should not be interrupted prior to any dental procedure if the level is 3.5.²⁶

INR levels may be impacted by a variety of factors, such as the intake of specific foods and drugs. However, it is not the only factor that estimates the bleeding risk. Any concurrent coagulopathies or liver diseases further complicate this risk.²⁷ Furthermore, any past bleeding episodes during invasive dental treatments will serve as a warning to the dentist to implement proper hemostatic measures for the patient. As a result, adequate documentation of each patient's food, pharmacological, medical, dental, and surgical histories

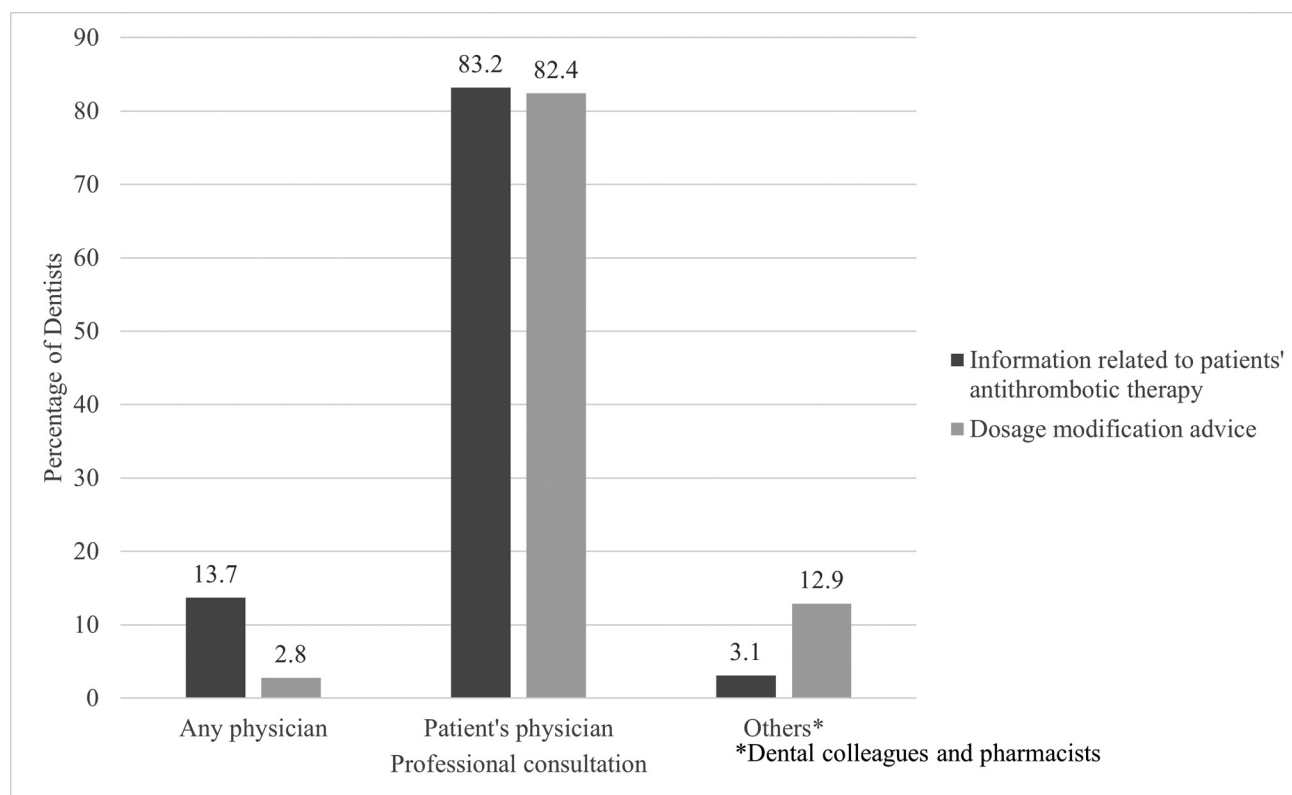


Fig. 1 Percentage of dentists seeking professional advice for the dental management of patients on oral antithrombotic medication (OAM).

Table 3 Dentists' responses regarding management decisions before certain dental procedures

Patients on aspirin therapy				
Dental procedure	Proceed without interruption and consultation	Ask patient to stop aspirin 7 days before procedure	Consult physician before procedure	Don't know
Extensive dental scaling	85 (34.3)	66 (26.6)	54 (21.8)	43 (17.3)
Extraction of one to three teeth	52 (21)	53 (21.3)	94 (37.9)	49 (19.8)
Extraction of four or more teeth	34 (13.7)	41 (16.5)	119 (48)	54 (21.8)
Root canal treatment	154 (62.1)	20 (8.1)	18 (7.3)	56 (22.6)
Patients on warfarin therapy				
Dental procedure	Proceed without checking INR	Ask patient to stop warfarin 3 days before procedure	Consult physician to check INR before procedure	Don't know
Extensive dental scaling	43 (17.3)	44 (17.7)	82 (33.1)	79 (31.9)
Extraction of one to three teeth	7 (2.8)	45 (18.1)	134 (54)	62 (25)
Extraction of four or more teeth	0 (0)	17 (6.9)	163 (65.7)	68 (27.4)
Root canal treatment	73 (29.4)	23 (9.3)	61 (24.6)	91 (36.7)

Abbreviation: INR, international normalized ratio.

should be emphasized. Hence, prior experience with the individual patient is an important factor, although in our study, less than a third of the participants regarded it as a factor in patient management. According to the survey by van Diermen et al, former experience with the patient was the top denominator (47%), for treatment decisions of oral and maxillofacial surgeons.¹⁹

The quantity of aspirin taken was viewed as a significant determinant by more than half of the dentists in the study. The usual dose of aspirin for thrombosis prevention is 75 to 325 mg.²⁸ Previous studies have shown that aspirin, even at larger dosages and when combined with dual-antiplatelet medication, does not produce clinically significant bleeding with invasive dental procedures and that any bleeding

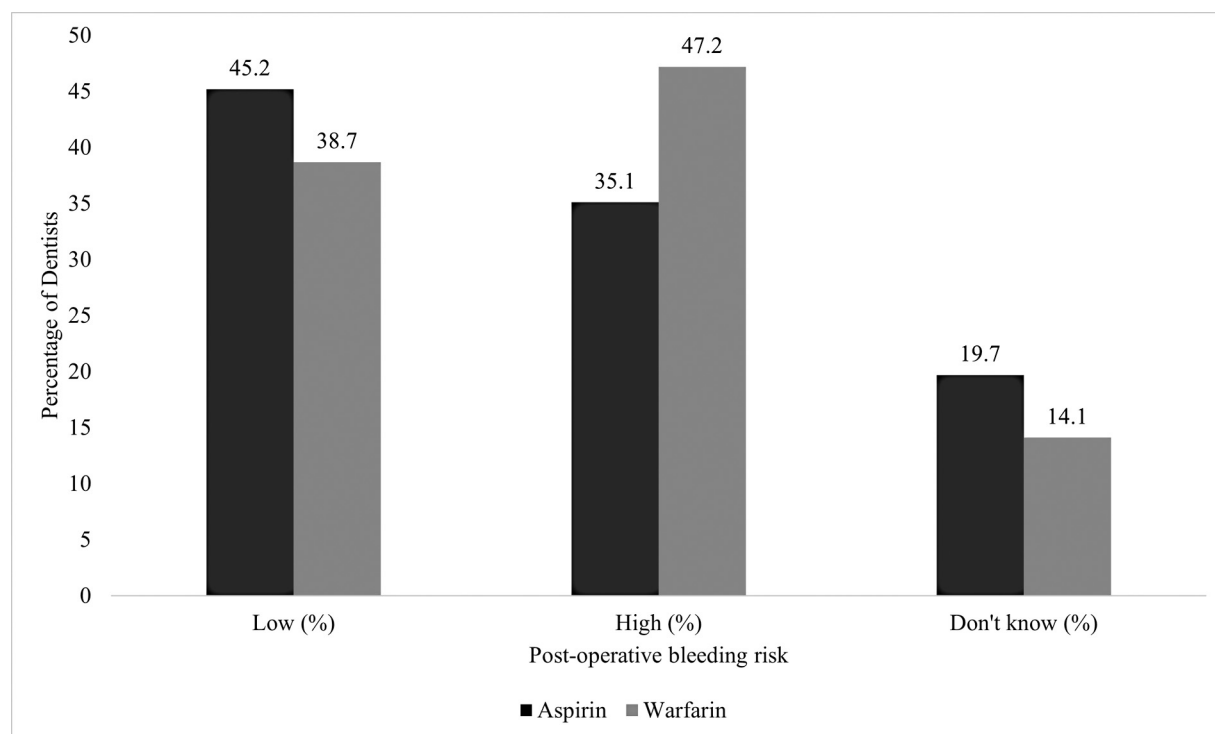


Fig. 2 Dentists' perception of postoperative bleeding risk after a simple tooth extraction for patients on oral antithrombotic medication (OAM) therapy.

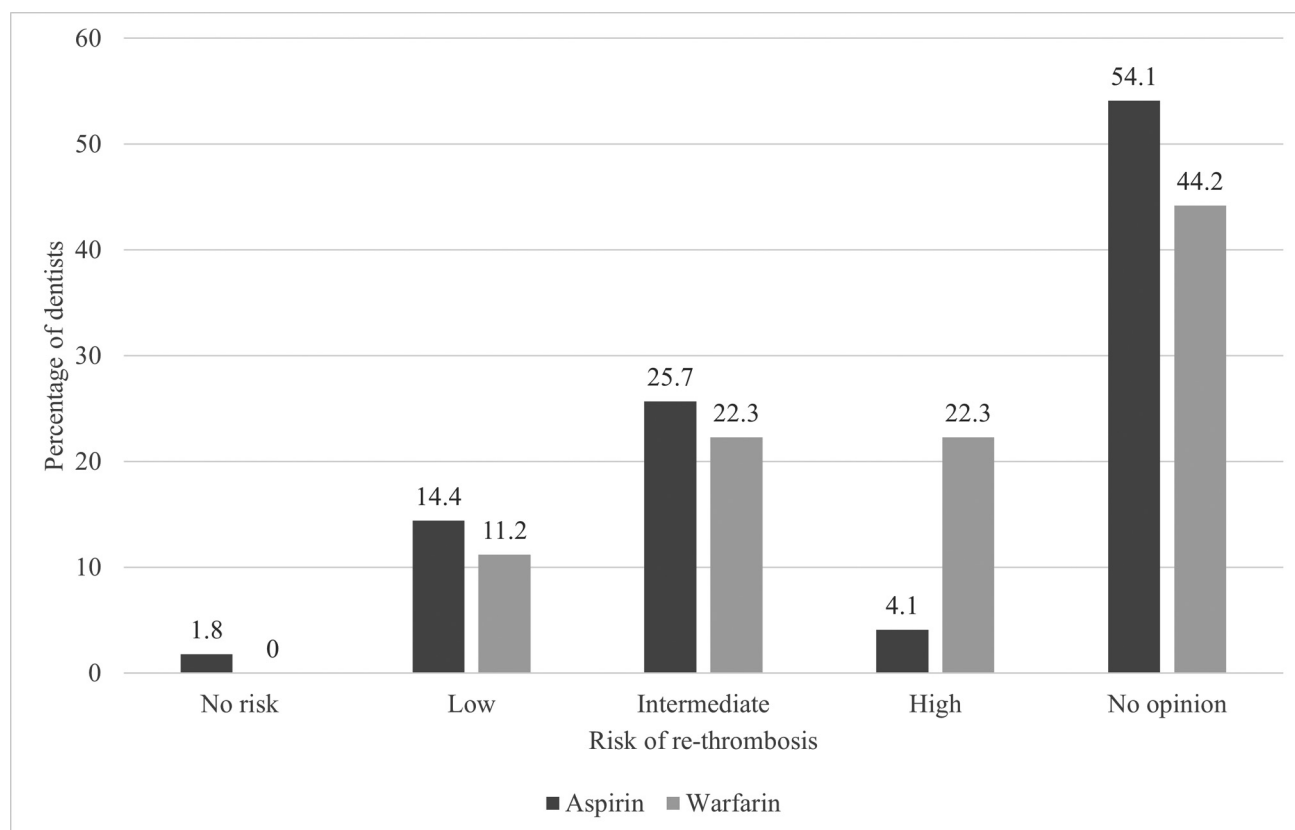


Fig. 3 Dentists' responses for rethrombosis risk estimation for patients who discontinue oral antithrombotic medication (OAM) therapy prior to dental procedures.

Table 4 Association between demographic data with knowledge score (categorized as > 50% questions are correctly answered), *N* = 248

Variables	Univariate logistic regression		Multivariate logistic regression	
	Unadjusted odds ratio (OR) and 95% CI	<i>p</i> -Value	Adjusted odds ratio (OR) and 95% CI	<i>p</i> -Value
Gender				
Female	1.0 (ref)	0.131	1.0 (ref)	< 0.001 ^a
Male	1.6 (0.9–2.8)		9.4 (3.7–24.6)	
Age group				
40 years and above	1.0 (ref)	0.012 ^a	1.0 (ref)	0.07
Below 40 years	2.2 (1.2–4.1)		1.8 (0.9–3.6)	
Practice type				
Specialists	1.0 (ref)	0.003 ^a	1.0 (ref)	< 0.001 ^a
General dentists	2.4 (1.3–4.4)		5.4 (2.4–12.0)	
Years of experience				
More than 8 years	1.0 (ref)	0.008 ^a	1.0 (ref)	< 0.001 ^a
8 years and below	3.1 (1.3–7.3)		10.1 (3.3–13.1)	

Abbreviation: CI, confidence interval.

^a*p* < 0.05.

should be managed with local hemostatic techniques without halting the medicine.^{6,7,29,30}

Simple extractions (of 1–3 teeth) were classified as a procedure with a high risk of bleeding by more than half of the respondents. Moreover, almost 40% of the dentists categorized the risk of bleeding associated with scaling and root planing as high. The SDCEP classifies various dental procedures based on the risk of bleeding that they pose.²⁰ According to the guidelines, the two procedures mentioned above are classified as low bleeding risk. High bleeding risk procedures include complex extractions, extractions involving the removal of more than three teeth at once, flap raising procedures, and biopsies.

A significant proportion of dentists in this study reported that they routinely order blood screening tests for patients on antiplatelet therapy. Almost half (45.8%) of the Chennai dentists routinely requested a bleeding time test for patients on OAM.³ In the study by AlSheef et al, 10.8 and 11.5% of Saudi dentists said that they would order a laboratory test for patients taking aspirin or clopidogrel, respectively.¹⁴ Despite the fact that platelet function tests and tests for bleeding time are available to estimate platelet function in patients using aspirin and other antiplatelet agents, previous research has shown that they are not reliable predictors of platelet function for oral or mucosal bleeding.³¹ Thus, blood screening tests are not routinely performed before dental procedures on patients taking antiplatelet drugs.

Most dentists (71.4%) in this study routinely requested blood tests from patients taking warfarin. Pretreatment INR checks were advised by 30.8% of Saudi dentists, 47.2% of Chennai dentists, and 84% of dentists from Southwest Wales.^{3,14,18} The INR test is used to monitor patients on warfarin therapy and must be tested on a regular basis to maintain an effective therapeutic range of warfarin.³² Before

performing any dental procedure that is likely to produce bleeding, the dentist should review the findings of the INR test.²⁶

In our study, nearly one-fourth of the dentists stated that they would rely on INR test results obtained more than 72 hours before a scheduled dental procedure. In a Polish study, 27.6% of surgical dentists and 37.5% of nonsurgical dentists considered the results up to 48 hours prior to the treatment as reliable, whereas in a study from Southwest Wales, 18% of dentists shared this opinion.^{17,18} For patients with a stable INR, the level from a test conducted within 72 hours is acceptable. For patients with an unstable INR level, however, only a test taken within 24 hours should be considered, and the procedure should be performed only if the patient's INR level is within the target range.²⁰ The INR test is not critical for procedures that are unlikely to cause bleeding, such as local infiltration anesthesia, restoration with supragingival margins, and conventional RCT.

In our study, the majority of respondents sought professional advice from the patient's primary care physician. More than 70% of Dutch dentists responded that they consult with medical colleagues when treating patients receiving antithrombotic therapy.¹⁵ Obtaining information such as the type of antithrombotic medication used, the INR level, the underlying medical condition, and comorbidities from the patient's physician is vital for patient care. The dentist should also consult with the patient's physician about the planned dental procedure and any potential bleeding risks. Nonetheless, the dentist should exercise caution in following the physician's advice related to dosage adjustments prior to certain dental procedures. This is because several inconsistencies have been reported among the physicians in relation to their decisions to alter therapy before dental procedures.³³ Hence, to avoid inappropriate

cessation of the antithrombotic therapy, dentists should apply their clinical discretion and urge the physician to follow the updated clinical guidance proposed by prominent dental advisory boards.^{6,20,21}

Only a small minority of the dentists in our survey would undertake extractions of more than three teeth without interrupting aspirin therapy or getting the doctor's approval. Similarly, just 6% of dentists in the Netherlands responded that they would perform extractions of four or more teeth in patients being treated with aspirin without medical consultation.¹⁵ Recent recommendations explicitly specify that aspirin can be continued during any dental procedure, including invasive dental procedures, despite earlier conflicting opinions on the topic of stopping aspirin use before dental procedures.³⁴ For treatments with a higher risk of bleeding, such as the extraction of more than three teeth, local hemostatic therapies are advised.^{26,35} Also, it is recommended to perform the surgery over multiple visits.^{20,36}

Also, nearly half of the dentists in our research would consult with a physician before extracting more than three teeth. About 80% of dentists in the Netherlands said they sought medical advice or referred patients on aspirin therapy to dental specialists.¹⁵ While it is not needed for all aspirin patients to contact a physician, it is strongly advised for people who have medical comorbidities such as hemophilia, liver disease, or thrombocytopenia to do so.^{6,36}

In our study, less than one-third of dentists would proceed with a RCT for patients on warfarin therapy without first assessing their INR. For dental procedures that are unlikely to cause bleeding, such as RCT, there is no need to check the INR.²² However, if an inferior alveolar nerve block is necessary to perform the RCT, the INR should be checked within 24 hours of the procedure, especially for patients with an unstable INR.²⁰ In contrast, checking INR levels is mandatory before any invasive dental procedure, including those that carry a low or high bleeding risk.^{20,26}

In our study, more than half of the dentists stated that they would check the INR level and consult with a physician to decide on the appropriate value before dental extraction. In the Southwest Wales study, 84% of the respondents indicated that they would check patients' INR prior to treatment, and 62% indicated that they would seek medical advice for high bleeding risk dental procedures.¹⁸ More than 90% of the dentists in the Netherlands study stated that they sought medical advice or referred patients on warfarin therapy when they needed to undergo four or more extractions.¹⁵

It is typically advised that the invasive dental procedure be performed without altering warfarin therapy if the INR \leq 3.5. If the INR is greater than 3.5, the warfarin dose should be modified by the patient's physician. In such cases, it is important to remember that dose alteration is the sole duty of the patient's physician and not the dentist.³³ Warfarin therapy should never be interrupted before an invasive dental procedure without first considering the INR, as it might cause severe, sometimes fatal, thromboembolic events.

In our study, more than one-third of the dentists reported that there is a substantial risk of postoperative bleeding following a simple tooth extraction if aspirin is continued.

For warfarin, almost half of the dentists stated that the chance of postoperative bleeding was high. Previous surveys have reported that dentists tend to overestimate the bleeding risk in patients using OAM.^{3,15,19} Most of the previous studies have shown that the risk of bleeding, whether limited or serious, is less than 3% for patients on antiplatelet therapy and less than 1% for patients on warfarin.^{18,29} Postoperative bleeding after dental treatment without interruption of OAM can be troublesome but never life-threatening and can often be controlled easily.^{9,29,37}

In our survey, the majority of dentists believed that the risk of thromboembolic complications following the cessation of antithrombotic medication was intermediate or high, whereas only a small percentage believed it to be low. Similar findings have been found by Dutch dentists.¹⁵ Most studies show that the risk of thromboembolic events is less than 3% following the discontinuation of antithrombotic therapy (1.1% Wysokinski et al; 0.4% Garcia et al; Skolarus et al 1%; Wahl et al 2.5%).^{9,11,38,39} Despite the low percentage, it should be noted that it can cause significant, sometimes fatal, consequences. As a result, most reputable medical and dental authorities advise that oral anticoagulation treatment be continued without interruption for most dental procedures.²⁹

Conclusion

In this study, the dentists demonstrate a lack of knowledge and are not clear regarding practice recommendations. They were not familiar with the novel oral anticoagulant medications. A substantial percentage of dentists incorrectly classified certain dental procedures with a low risk of bleeding as high-risk procedures. Few dentists interrupt the antithrombotic therapy prior to dental procedures where it is not required. The majority of them were unaware of the significance of assessing the INR and when it should be measured before a dental procedure on warfarin patients. Most of the dentists failed to estimate the rethrombosis risk associated with discontinuation of antithrombotic therapy while overestimating the bleeding risk associated with no interruption of therapy. The vast majority of responders expressed interest in CE courses on dental management of patients taking antithrombotic medication.

Conflict of Interest

None declared.

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