

Original Article

Perioperative management of patients undergoing antithrombotic treatment in oral surgery in France: a survey

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Abstract – Introduction: The prevention and treatment of thromboembolic events is generally based on the prescription of antithrombotics. These drugs are associated with an increased hemorrhagic risk. The procedures for the management of patients under antithrombotic treatment are described in the recommendations of the Société Française de Chirurgie Orale (SFCO), published in 2015. The main objective of this study was to describe dentists' knowledge and practices regarding the perioperative management of patients under antithrombotic agents in oral surgery in France. **Materials and methods:** A national cross-sectional study was conducted between June and September 2018. An electronic questionnaire was created on Google Forms and sent through social networks. **Results:** In total, 185 responses were collected. Two-thirds of the respondents reported that they were aware of the 2015 recommendations. Ten respondents reported that they did not manage patients treated with antithrombotic drugs. Among the respondents who managed such patients, 25% and 16% ordered hemostasis tests for patients treated with direct anticoagulants and antiplatelet agents, respectively. **Discussion:** Although 71% of dentists considered themselves properly informed, one-third stated that they were not aware of SFCO's 2015 recommendations. Among those who were aware of these recommendations, 47% correctly ordered hemostasis tests before surgery in patients on antithrombotic medication. **Conclusion:** This study indicates that there is a lack of knowledge and noncompliance with the recommendations among at least half the sample population regarding perioperative management of patients on antithrombotic therapy.

Introduction

Cardiovascular disease is the second leading cause of morbidity and mortality after cancer in France. The treatment and prevention of thromboembolic events are a major public health issue [1]. Antithrombotics are prescribed to prevent and treat thromboembolic events [2]. Antithrombotics include antiplatelet agents and anticoagulants, which are prescribed to 5% and 4% of the population, respectively [3–5]. These drugs are associated with an increased risk of bleeding, which directly affects oral surgeons. Management of oral surgery patients treated with antithrombotics requires precautions specific to each type of medication. The Société Française de Chirurgie Orale (SFCO) [French Society of Oral Surgery] and Société Française de Cardiologie [French Society of Cardiology] drafted recommendations for the management of patients on antiplatelet agents in 2005 and recommendations on the management of patients taking vitamin K in 2006. In recent years, antithrombotic treatment

has evolved considerably with the arrival of novel drugs. Two new antiplatelet agents (prasugrel and ticagrelor) and three direct oral anticoagulants with selective and specific action on activated II and X factors (dabigatran, rivaroxaban, and apixaban) are available in the market. In 2015, the SFCO updated the recommendations concerning the perioperative management of patients on antithrombotic agents [6].

The main objective of this study was to describe dentists' understanding and practices concerning the perioperative management of patients on antithrombotics receiving oral surgery in France. The secondary objectives were to determine the proportion of practitioners who were aware of the 2015 recommendations and whether they changed their oral surgery practices to follow these recommendations.

Materials and methods

A national practice evaluation study was conducted among French dentists in France in both hospitals and private practices between June and September 2018. This was a descriptive survey of professional practices based on an electronic questionnaire.

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The survey successively addressed three main areas of interest:

- the profile of the dentists interviewed;
- perioperative management of patients under antithrombotic conditions;
- knowledge and application of recommendations.

The target population was all dentists practicing in France, in a private practice and/or hospital environment and excluded those who exclusively worked with dentofacial orthopedics. The source population was dentists registered with the *Tableau de l'Ordre* [General Medical Council] with Internet access and belonging to Facebook groups reserved for French dentists.

Dentists registered with the *Tableau de l'Ordre* [General Medical Council] and working in a private practice and/or hospital were included. Practitioners with an exclusive practice dealing with dentofacial orthopedics were excluded.

The questionnaire, which comprised 23 questions divided into three sections, was submitted to five private practice and hospital dentists to assess the time required to answer, check the consistency and understanding of the questions asked, and identify any problems. After modification following the review of their remarks, the questionnaire (Fig. 1) was posted on the Google Forms platform and distributed to the source population in June 2018 via social networks. Data collection stopped at the end of September 2018. The participants were informed about the research and the use of the data collected. The data collected was anonymous, and their identity was protected.

The variables of interest were: the management of hemorrhagic risk, the volume of surgical activity, the occurrence of hemorrhagic complications, and their knowledge of the recommendations.

The acquired data were analyzed directly via Google Forms and Microsoft Excel. Statistical processing was conducted using the OpenEpi online statistical analysis program. Chi-squared and Fisher's exact tests were used to study the difference in achievement of high-risk hemorrhagic acts according to the type of practice, exclusive versus general, and hospital versus private and to study the difference in complications between oral surgeons with a specific field and general practitioner dentists. The difference was judged to be statistically significant if $p < 0.05$.

Results

In view of the documents available, the *Groupe Publication du Comité d'Éthique du Centre Hospitalier Universitaire de Bordeaux* [Publication Group of the Ethics Committee of the Bordeaux University Hospital Center] issued a favorable opinion for the publication of this paper (Opinion CE-GP-2019-17).

Profile of the practitioners surveyed

The sample comprised 185 respondents working in mainland France and overseas territories. Of the 185 participants, 58%

were women and 75% of respondents had graduated less than 15 years ago. Respondents were mainly general dentists practitioners (93%), and 13 practitioners reported they had specialized domain (Fig. 2). The majority of practitioners worked in groups in private practices, and 8% of them also worked in another practice (hospital services and health centers).

Approximately 69% of practitioners in the total sample reported providing each patient with a written questionnaire at the first consultation. This was the most common method of collecting medical history. Additionally, 27% of the surveyed practitioners combined this method with an oral questionnaire. Of the 185 practitioners interviewed, all performed at least one oral surgical procedure per month. The majority of respondents performed between 10 and 20 procedures per month. Of the 13 practitioners practicing specialty disciplines, 12 reported performing more than 20 oral surgical procedures per month (Fig. 3).

Only 10 (5.4%) practitioners reported not treating patients treated with antithrombotics. These practitioners mainly referred their patients undergoing antithrombotic treatment to a stomatologist or maxillofacial surgeon working at a private practice or to a colleague practicing at a hospital. The reasons why they did not treat these patients were mainly fear of the hemorrhagic risk and complications (70% of the responses), and the lack of adapted equipment within the practice.

Of the 175 practitioners who treated patients treated with antithrombotic drugs, 65.7% ($n=115$) performed only low-risk hemorrhagic procedures and referred patients who were at high hemorrhagic risk for surgery (Fig. 4).

Oral surgeons were more likely to perform high-risk hemorrhagic treatments in patients treated with antithrombotics (92%) than general practitioners (30%) (Fisher's exact test, $p < 0.001$). Dentists practicing in hospitals (specialist or not) were more likely to perform high-risk hemorrhagic procedures in patients undergoing antithrombotic therapy (chi-squared test, $p < 0.001$) (Tab. I).

Perioperative management of patients under antithrombotic conditions

Ninety-three percent of practitioners ($n=163$) requested an international normalized ratio (INR) in patients administered antivitamin K (AVK) before performing a surgical procedure; 25% ($n=43$) required a hemostasis assessment in patients receiving direct oral anticoagulants; and 16% ($n=28$) requested hemostasis assessment in patients on antiplatelet agents (APA). Of the respondents, seven (4%) reported requesting a systematic discontinuation or switching of the antithrombotic treatment.

Among practitioners who ordered an INR in patients on AVK ($n=163$), 55% and 24% did not perform hemorrhagic procedures if the INR was greater than 3 and 4, respectively.

Survey on the management of patients taking antithrombotic drugs in France

We are currently conducting a survey of the perioperative management of patients treated with antithrombotic agents in oral surgery. The main objective is to describe the knowledge and practices of oral surgeons. This questionnaire will take approximately 5 minutes to complete. The questionnaire is anonymous. Thank you for your participation.

I- DESCRIPTION OF THE PRACTITIONER AND THEIR PRACTICE

Are you?

- Female
- Male

In what year did you graduate?

You practice as:

- Dentist practitioner
- Dentist practitioner with a specialty field (endodontics/periodontics/pedodontics/surgery/implantology)
- Orthodontist (> end of questionnaire)

If you are a dentist with a specialty field, please specify:

- Endodontics
- Periodontology/Implantology
- Pediatrics
- Oral Surgery

What is (or are) your practice structure(s)?

- Alone, at a private clinic
- In a group at a private clinic
- In a medical practice or medical center
- At a hospital

Do you work with the help of an assistant?

- Yes
- No

How do you collect the current history and treatment details of your patients?

- Delivery of a written medical questionnaire during the first appointment.
- Oral questionnaire during the first appointment.
- You do not perform a systematic medical assessment.

How many oral surgical procedures do you perform per month?

- Between 1 and 5
- Between 5 and 10
- Between 10 and 20
- More than 20
- I do not perform any surgical procedures

II- PERIOPERATIVE MANAGEMENT OF PATIENTS UNDER ANTITHROMBOTICS

Do you perform surgical procedures (avulsions, implant placement, etc.) in patients treated with antithrombotics (APA, AVK, and new anticoagulants)?

- Yes
- No

If no, to whom do you refer these patients?

- Dentist/Surgeon at a private practice
- Dentist/Surgeon at a hospital
- Oral Surgeon at a private practice
- Oral Surgeon at a hospital
- Stomatologist or maxillofacial surgeon at a private practice
- Stomatologist or maxillofacial surgeon at a hospital
- Attending physician

If no, what are the reasons for not performing any procedures on antithrombotic patients?

- You do not have appropriate equipment in the office
- You fear the hemorrhagic risk and complications
- Other: specify

What are the procedures you perform on a patient treated with antithrombotics?

- You perform low hemorrhagic risk (simple avulsion, single implant) and high hemorrhagic risk (multiple avulsions in multiple quadrants, multiple implants, guided bone regeneration or transplant) procedures.

- You only perform procedures with a low hemorrhagic risk (simple avulsion, single implant, periodontal surgery, etc.) and you refer the patients for high hemorrhagic risk procedures

To whom do you refer these patients?

- Dentist/Surgeon at a private practice
- Dentist/Surgeon at a hospital
- Oral Surgeon at a private practice
- Oral Surgeon at a hospital
- Stomatologist or maxillofacial surgeon at a private practice
- Stomatologist or maxillofacial surgeon at a hospital

Before performing a surgical procedure in a patient under antithrombotic conditions:

- You ask for a hemostasis report for a patient under APA
- You do not ask for a hemostasis report for a patient under APA
- You ask for an INR for a patient under AVK
- You do not ask for an INR for a patient under AVK
- You ask for a hemostasis assessment for a patient under DOA
- You do not ask for a hemostasis assessment for a patient under DOA
- You always ask for the patient to discontinue antithrombotic treatment

What is the INR value to determine whether or not you perform a procedure with a risk of hemorrhage?

- INR > 2
- INR > 3
- INR > 3.5
- INR > 4

Do you routinely use a hemostasis technique in antithrombotic patients after dental avulsion?

- Yes
- No

You have just performed a dental avulsion in a patient undergoing antithrombotic treatment; which technique of hemostasis do you use?

- Compression
- Implementation of a hemostatic material
- Suture
- Compression using a compress soaked in tranexamic acid
- Other: specify

Have you ever had hemorrhagic complications in an antithrombotic patient?

- Yes
- No

If yes, did you manage the complication in this patient?

- Yes
- No, I consulted a colleague

III- RECOMMENDATIONS

What are your references for the treatment of patients undergoing antithrombotic treatment?

- Conferences
- Conventions, symposiums
- Initial training
- Continuing education
- Social networks
- Websites of official organizations (ANSM, SFCO, French Federation of Cardiology, and Professional Press)
- Contact with the attending physician
- Not informed

How do you consider your knowledge of the recommendations for patients treated with antithrombotics to be?

- Very good
- Good
- Average
- Insufficient

Are you aware of the latest recommendations by the French Society of Oral Surgery 2015 on the perioperative management of patients on antithrombotic drugs?

- Yes
- No

Have these recommendations changed how you manage patients undergoing antithrombotic treatment?

- Yes
- No

Fig. 1. Distributed questionnaire on the perioperative management of antithrombotic patients. The questionnaire comprised three sections with 23 questions.

The majority (92%) routinely used at least one local hemostasis technique in the management of these patients (Fig. 5).

Of the respondents, 40% reported having had a hemorrhagic complication in a patient treated with antithrombotics; 88% managed this complication, whereas the others referred the patient to a colleague.

Oral surgery specialists had more bleeding complications (69%) than general practitioner dentists (38%) (chi-squared test; $p < 0.05$) (Tab. II).

Knowledge and application of recommendations

Of the total sample, 71% reported having good or very good knowledge of the recommendations made on the management of

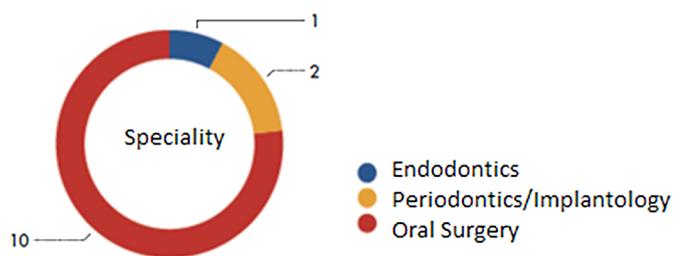


Fig. 2. Practitioners with specialized domain.

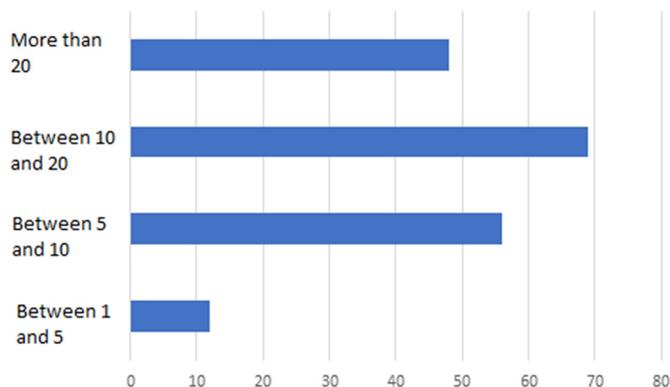


Fig. 3. Number of oral surgery procedures performed by the respondents (n=185).

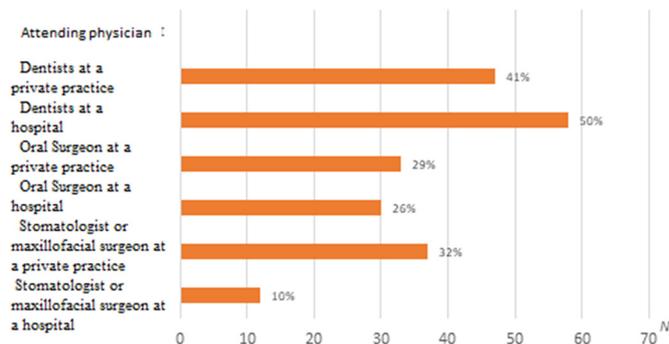


Fig. 4. Practitioners to whom antithrombotic patients were referred for oral surgery procedures at high hemorrhagic risk.

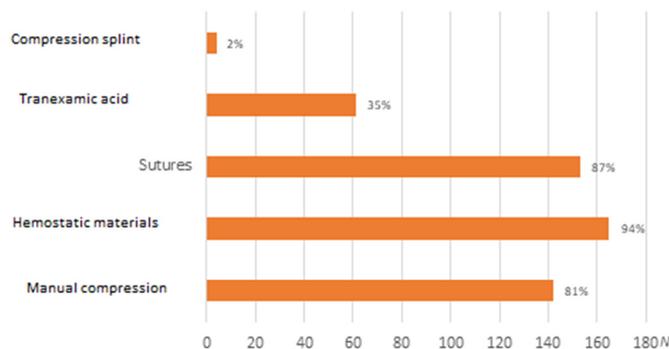


Fig. 5. Local hemostatic methods used by the respondents.

Table I. Management of the surgical procedures with high hemorrhagic risk according to the practice profile of the respondents.

Fisher's exact test	N	Low and high hemorrhagic risk of bleeding n (%)	Low hemorrhagic risk only n (%)	P
Exclusive hospital practice	22	16 (72.73%)	6 (27.27%)	<10 ⁻⁴
Private practice only	109	44 (28.76%)	109 (71.24%)	
Total	175	60 (34.29%)	115 (65.71%)	

Table II. Onset of the hemorrhagic complications according to the practice profile.

Chi-squared test	N	Absence of hemorrhagic complications n (%)	Hemorrhagic complications n (%)	p
Oral surgeon with a specialty	13	4 (30.77%)	9 (69.23%)	0.025
General practitioner dentist	162	101 (62.35%)	61 (37.65%)	
Total	175	105 (60%)	70 (40%)	

patients undergoing antithrombotic treatment in oral surgery. Nearly one-third (31%) stated they had no knowledge of the 2015 SFCO recommendations concerning the perioperative management of patients under antithrombotic oral surgery. Of 69% practitioners who were aware of the recommendations, half judged that these recommendations had changed their practice.

Their knowledge of the recommendations concerning the perioperative management of antithrombotic patients came primarily from the websites of official bodies, then from speaking with the treating physicians of these patients, and from initial and/or additional training according to their duration of professional experience (Fig. 6).

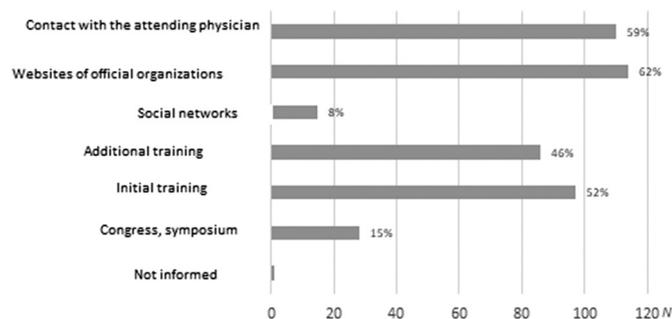


Fig. 6. Guidelines used for the management of antithrombotic patients ($n = 185$).

Discussion

This investigation focused on perioperative management of patients undergoing antithrombotic surgery.

The questionnaire was sent to practitioners through Internet-based social networks. This method of communication does not make it possible to quantify a source population as the number of practitioners who had access to the questionnaire is unknown. It is impossible to know the participation rate in this survey, which constitutes a significant bias that makes it impossible to extrapolate the results. The study is simply a snapshot of the knowledge and practices of a population selected by the dissemination channels of the questionnaire.

The sample in our study was made up of a young population, mostly women who had graduated less than 15 years prior. In 2016, the population of oral surgeons in France was predominantly male according to national epidemiological data, but women represented 54% of oral surgeons aged less than 45 years, which is comparable to our sample population [7].

The majority of the sample worked in groups in private practices (65%). According to current data, group practices represent 54% of the total number of oral surgeons in France [7].

According to the recommendations, hemorrhagic risk assessment is primarily based on medical examination and preoperative clinical examination. Studies have shown that this stage of preoperative investigation must be conducted in a structured and systematic manner in order to correctly assess the hemorrhagic risk [8,9]. According to several studies [10,11], the use of standardized written medical questionnaires enhances the quality of medical data collection. In our survey, 69% of respondents used this method of collecting medical histories. According to the answers obtained, the practitioner must complete the medical examination with an oral history assessing the hemorrhagic risk. In this study, 27% of practitioners combined a written and oral medical questionnaire compared with 62% of practitioners in a survey conducted in the Netherlands [12].

In an epidemiological study conducted in 2007 in Ile-et-Vilaine on dental extractions in patients taking AVK, 43% of respondents stated that they did not treat these patients [13]. In our study, only 5% of practitioners reported that they do not

manage oral surgery patients receiving antithrombotic therapy. A selection bias of practitioners participating in the study probably explains the difference. Access to the recommendations issued by SFCO and the simplification of perioperative management has also increased the management of such patients in current practice.

In this survey, the fear of hemorrhagic risk and associated complications were stated as the main reasons for not treating these patients (70%). Several studies have shown that minor surgical procedures can be performed without interrupting antithrombotic therapy and significantly increasing the hemorrhagic risk; the management of this risk is based primarily on the preoperative evaluation and the hemostasis and monitoring measures implemented postoperatively [14–16]. This apprehension of hemorrhagic risk reflects a lack of training in the field of oral surgery [13,17]. Our statistical tests showed that practitioners with an exclusive specialty or practicing in the hospital sector had a larger volume of surgical activity and were more likely to manage patients at high risk of bleeding (92.3%) than general practitioners (29.6%).

Regarding complications, 40% of practitioners performing surgery in patients treated with antithrombotics already experienced at least one complication. This value is higher than that obtained in an epidemiological study on dental extractions in patients on AVK, in which 29% of practitioners reported having already experienced a hemorrhagic complication. The difference in the occurrence of hemorrhagic complications can be explained by the fact that our study took into consideration the antithrombotics (APA, oral anticoagulants, and antivitamin K), whereas the epidemiological study conducted in Ile-et-Vilaine only considered patients taking AVK. Moreover, in our study, only 67.6% of the practitioners surveyed performed hemostasis based on the SFCO recommendations; they were 72.2% in the study by Massot *et al.* [13].

This study highlights a lack of knowledge of current recommendations in the sample of young, internet-connected practitioners with potential access to information. Furthermore, although 71% of practitioners considered themselves to be properly informed, one-third stated that they had no knowledge of the 2015 SFCO recommendations. Of those who were aware of the recommendations, only 47% correctly ordered hemostasis assessments before surgery in patients undergoing antithrombotic therapy. Few practitioners performed a systematic discontinuation of antithrombotic therapy (4%). Numerous studies [18–26] demonstrated increased thromboembolic risk in case of treatment discontinuation. However, as this study sample had mostly graduated less than 10 years ago, it is estimated that practitioners had access to the 2006 recommendations from their initial training and are therefore more aware of the risks involved in treatment discontinuation.

It was noted that 25% and 16% of respondents ordered hemostasis assessments in patients on AOD and AAP, respectively. These assessments have demonstrated no

usefulness in daily practice to predict hemorrhagic risk and lead to a significant increase in health expenditure. Of 93% of practitioners who ordered an INR before any surgical intervention in the patients under AVK, 59% did not perform a surgical procedure if the INR was higher than 3, but this value threshold corresponds to that recommended by the 2006 recommendations. Since 2015, any intervention with a low hemorrhagic risk can be performed if the INR is less than 4.

Two studies conducted in the Netherlands in 2011 and 2012 showed that 53% of practitioners were unfamiliar with the use of INR [12] and that over 40% of practitioners considered a value of 2 to be the maximum value of INR to perform a safe extraction [27]. In these two studies, 87% and 73% practitioners, respectively, responded positively when asked if they needed recommendations for the management of patients on antithrombotic therapy [12,27]. Similar results were obtained in a study conducted in India in 2017; the majority of respondents did not order INR, and among those who did, approximately half did not perform surgery even though the INR values were below therapeutic limits. Furthermore, 93% of participants had also expressed the need for a guide to good practices [28].

The results of this survey should be interpreted with caution considering the selection bias and low number of participants. Participants may have a better understanding of the recommendations than non-respondents as their interest in the subject may have motivated them to answer the questionnaire. Internet dissemination probably led to a selection bias even though the profession had a high rate of computerization. Despite the various biases of this survey, we can judge from the selected sample that compliance with the recommendations can be improved.

Conclusion

This survey of 185 practitioners demonstrates a lack of knowledge and a noncompliance with recommendations among at least half the respondents.

Continuous training appears to be an indispensable means to reinforce the knowledge of oral surgeons as well as doctors prescribing antithrombotics who are privileged interlocutors when planning an oral surgery procedure.

Conflicts of interests: The authors declare that they have no conflicts of interest in relation to this article.

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References

- HAS. Rapport d'évaluation des médicaments anticoagulants oraux. [Internet]. 2018 févr. <https://www.has-sante.fr/>
- ANSM. Les anticoagulants en France en 2014 : état des lieux, synthèse et surveillance. [Internet]. 2014. <https://ansm.sante.fr/>
- Autorité de la Concurrence. Décision n° 13-D-11 du 14 mai 2013 relative à des pratiques mises en œuvre dans le secteur pharmaceutique.
- HAS. Les anticoagulants oraux. [Internet]. 2018 mai. <https://www.has-sante.fr/>
- HAS. Antiagrégants plaquettaires: prise en compte des risques thrombotique et hémorragique pour les gestes percutanés chez le coronarien. [Internet]. 2012 Juin <https://www.has-sante.fr/>
- Société Française de Chirurgie Orale. Gestion péri-opératoire des patients traités par antithrombotiques en chirurgie orale. 2015 juil. <https://societechirurgicale.com/fr/>
- DREES. Épidémiologie des professionnels de santé. 2016. [Internet]. <https://drees.solidarites-sante.gouv.fr/etudes-et-statistiques/>
- Crowther MA, Warkentin TE. Bleeding risk and the management of bleeding complications in patients undergoing anticoagulant therapy: focus on new anticoagulant agents. *Blood* 2008;111:4871–4879.
- Chee YL, Crawford JC, Watson HG, Greaves M. Guidelines on the assessment of bleeding risk prior to surgery or invasive procedures. *Br J Haematol* 2008;140:496–504.
- Abraham-Inpijn L, Russell G, Abraham DA, Bäckman N, Baum E, Bullón-Fernández P, et al. A patient-administered Medical Risk Related History questionnaire (EMRRH) for use in 10 European countries (multicenter trial). *Oral Surg Oral Med Oral Pathol Oral Radiol Endodontology* 2008;105:597–605.
- Glick M. The health questionnaire. *J Am Dent Assoc.* 2007;138:932–934.
- van Diermen DE, Bruers JJM, Hoogstraten J, Bovenlander M, van den Bosch A, van der Waal I. Treating dental patients who use oral antithrombotic medication. *J Am Dent Assoc* 2011;142:1376–1382.
- Massot M, Clipet F, Alno N, Garnier J, Köhler B, De Mello G. Étude épidémiologique sur les extractions dentaires chez les patients sous AVK en Ille-et-Vilaine. *Médecine Buccale Chir Buccale* 2009;15:S29–S37.
- Cannon PD, Dharmar VT. Minor oral surgical procedures in patients on oral anticoagulants – a controlled study. *Aust Dent J* 2003;48:115–118.
- Evans IL, Sayers MS, Gibbons AJ, Price G, Snooks H, Sugar AW. Can warfarin be continued during dental extraction? Results of a randomized controlled trial. *Br J Oral Maxillofac Surg* 2002;40:248–252.
- Davis C, Robertson C, Shivakumar S, Lee M. Implications of dabigatran, a direct thrombin inhibitor, for oral surgery practice. *J Can Dent Assoc* 2013;7.
- Devoize L, Durand A, Tubert-Jeannin S, Deschaumes C, Huard C, Machat-Pegon E, et al. Etude de l'activité chirurgicale des praticiens libéraux en Auvergne. *Médecine Buccale Chir Buccale* 2006;12:63–72.
- Borea G, Montebugnoli L, Capuzzi P, Magelli C. Tranexamic acid as a mouthwash in anticoagulant-treated patients undergoing oral surgery. *Oral Surg Oral Med Oral Pathol* 1993;75:29–31.
- Lordkipanidzé M, Diodati JG, Pharand C. Possibility of a rebound phenomenon following antiplatelet therapy withdrawal: A look at the clinical and pharmacological evidence. *Pharmacol Ther.* 2009;123:178–186.
- Garcia DA, Regan S, Henault LE, Upadhyay A, Baker J, Othman M, et al. Risk of thromboembolism with short-term interruption of warfarin therapy. *Arch Intern Med* 2008;168:63–69.

21. Airolidi F, Colombo A, Morici N, Latib A, Cosgrave J, Buellesfeld L, et al. Incidence and predictors of drug-eluting stent thrombosis during and after discontinuation of thienopyridine treatment. *Circulation* 2007;116:745–754.
22. Chassot P-G., Delabays A, Spahn DR. Perioperative antiplatelet therapy: the case for continuing therapy in patients at risk of myocardial infarction. *Br J Anaesth* 2007;99:316–328.
23. Akopov SE, Suzuki S, Fredieu A, Kidwell CS, Saver JL, Cohen SN. Withdrawal of warfarin prior to a surgical procedure: Time to follow the guidelines? *Cerebrovasc Dis* 2005;19:337–342.
24. Biondi-Zoccai GGL, Lotrionte M, Agostoni P, Abbate A, Fusaro M, Burzotta F, et al. A systematic review and meta-analysis on the hazards of discontinuing or not adhering to aspirin among 50 279 patients at risk for coronary artery disease. *Eur Heart J* 2006;27:2667–2674.
25. Minassian C, D'Aiuto F, Hingorani AD, Smeeth L. Invasive dental treatment and risk for vascular events: A self-controlled case series. *Ann Intern Med* 2010;153:499.
26. Sambu N, Warner T, Curzen N. Clopidogrel withdrawal: Is there a “rebound” phenomenon? *Thromb Haemost* 2011;105: 211–220.
27. van Diermen DE, van der Waal I, Hoogvliets MW, Ong FN, Hoogstraten J. Survey response of oral and maxillofacial surgeons on invasive procedures in patients using antithrombotic medication. *Int J Oral Maxillofac Surg.* 2013;42:502–507.
28. Chinnaswami R. Dentists’ knowledge, attitude and practice in treating patients taking Oral antithrombotic medications – A Survey. *J Clin Diagn Res* 2017;11:ZC88–ZC91.