Perioperative management of patients treated with antithrombotics in oral surgery.

RECOMMENDATIONS

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Preamble

Background

Antithrombotic therapy has evolved considerably in recent years with the arrival of new medicinal products. Two new antiplatelet agents, prasugrel and ticagrelor have been used since 2010. Three new oral anticoagulants with selective and specific action on the activated factors II and X, known as direct oral anticoagulants were released: dabigatran in 2008, rivaroxaban in 2009 and apixaban in 2012. For each of these compounds, therapeutic progress is advanced: greater efficacy for new antiplatelet agents with a reduced number of non-responders, the existence of a broad therapeutic range and the absence of biological monitoring for new anticoagulants. However, there is currently no specific antidote on the market for these new anticoagulants.

Finally, more and more patients receive antithrombotic combination therapy (combination of two antiplatelet agents or a combination of an antiplatelet agent and an oral anticoagulant).

The arrival of these new compounds and new protocols for the management and prevention of thromboembolic events led to rethinking the approach of the patient treated with antithrombotics in oral surgery. That is why, in 2013, the Société Française de Chirurgie Orale initiated an update of these recommendations concerning the management of patients receiving therapy with an antiplatelet and/or anticoagulant in oral surgery (SFMbCb Recommendations 2005, 2006).

Objectives of these recommendations:

1) to define, for each of the families of antithrombotics, the risk of bleeding in the event of maintaining antithrombotic therapy for the different procedures and/or oral surgery invasive procedures;

2) to formalize the perioperative management of patients treated with antithrombotics in case of oral surgery.
Graduation scale

<table>
<thead>
<tr>
<th>Recommendation grades</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td><strong>Established scientific evidence</strong>&lt;br&gt;Based on studies with a high level of evidence (Level of Evidence 1): properly designed randomized controlled trials and free of major bias or meta-analyses of randomized controlled trials, decision analyses based on properly conducted studies.</td>
</tr>
<tr>
<td>B</td>
<td><strong>Scientific presumption</strong>&lt;br&gt;Based on a scientific presumption provided by intermediate level of evidence studies (Level of Evidence 2), such as low level randomized controlled trials, properly conducted non-randomized controlled studies, cohort studies.</td>
</tr>
<tr>
<td>C</td>
<td><strong>Low level of evidence</strong>&lt;br&gt;Based on lower level of evidence studies, such as case-control studies (Level of Evidence 3), retrospective studies, case series, comparative studies involving significant bias (Level of Evidence 4).</td>
</tr>
<tr>
<td>EO</td>
<td><strong>Expert opinion</strong>&lt;br&gt;In the absence of studies, the recommendations are based on consensus between the Working Group experts, after consulting with the Peer Review Group. The absence of grading does not mean that the recommendations are not relevant and useful. It should, however, encourage additional studies.</td>
</tr>
</tbody>
</table>

Abbreviations

ACS: Acute coronary syndrome(s)  
Afib: Atrial Fibrillation  
APA: Antiplatelet agent(s)  
aPTT: Activated partial thromboplastin time  
CVA: Cerebrovascular accident  
DOA: Direct oral anticoagulant(s)  
DVT: Deep vein thrombosis  
HIT: Heparin-induced thrombocytopenia  
INR: International normalized ratio  
LMWH: Low-molecular-weight heparin(s)  
MA: Marketing Authorization  
MI: Myocardial infarction  
NSAIDs: Non-steroidal anti-inflammatory drugs  
PCI: Percutaneous Coronary Intervention(s)  
PE: Pulmonary embolism  
UFH: Unfractionated heparin(s)  
VKA: Vitamin K antagonists or antivitamin K  
VTE: Venous thromboembolism
Recommendations

General information for all the antithrombotics

1. The assessment of the risk of surgical bleeding is the responsibility of the surgeon. This assessment is primarily based on the medical examination and preoperative clinical examination (GRADE B).

2. The clinician prescribing the antithrombotic agent is responsible for the assessment of thrombotic risk. His (her) assessment is essential in case of oral surgery with high risk of bleeding in order to determine the action to be taken with regard to the antithrombotic therapy (maintain, temporary suspension with or without replacement therapy) (AE).

3. In the event of oral surgery with low risk of bleeding such as dental avulsions (GRADE A), periodontal surgical procedures or the placing of dental implants (AE), the continuation of antithrombotic therapy is recommended.

4. Predisposing factors for hemorrhagic accidents in patients receiving antithrombotics are multiple and must lead to increased vigilance without being considered to be contraindications (AE).

5. To limit the risk of bleeding and facilitate the management of potential bleeding complications, it is preferable that the procedures are scheduled in the morning and early in the week. In case of multiple surgeries, segmental approach reduces this risk (AE).

6. The management of patients treated with antithrombotics can be done in general practice, subject to the patient’s cooperation and the proximity of a health facility (< 50 km or < 1 hour) or a pre-established health care network competent in the management of this type of patients (e.g., oral surgery practice) (AE).

7. The local hemostasis techniques are essential and systematically associated with oral surgery procedures (GRADE A).

8. The continuity of care must be absolutely assured. Any patient treated with antithrombotic agent(s) with postoperative bleeding complications must contact a practitioner who is competent in the management of this type of complication in the context of a care network or optionally a Hospital Dentistry Unit, Oral Surgery, Oral Medicine and/or Maxillofacial Surgery on call (AE).
9. In the event of surgery with high risk of bleeding (see Appendix 2), the opinion of the physician who prescribes the antithrombotic agent is essential to assess the risk of thrombosis. In the event of low risk of thrombosis, temporary discontinuation of antithrombotic treatment and management in general practice can be discussed. In the event of high risk of thrombosis, hospital care is recommended (AE).

10. In the event of uncontrollable postoperative bleeding by mechanical compression, the rule is the surgical revision of the hemostasis. After local anesthesia, curettage of the clot or a simple clot removal by suction, the surgical wound is revised, then the local hemostasis resumed according to the usual procedures. Postoperative recommendations are renewed. In the event of persistent bleeding despite the resumption of hemostasis, the patient must be hospitalized until the situation is under control (GRADE A).

**Specificities regarding the management of a patient treated with APA**

11. The continuation of monotherapy with antiplatelet agents (APAs) is recommended for any oral surgery procedure regardless of the associated risk of bleeding (Grade A for dental avulsions and AE for dental implant placement and all other procedures).

12. The continuation of a dual therapy with APAs is recommended in case of oral surgery with low risk of bleeding (Grade B for dental avulsions and AE for implant placement and all other procedures). In case of oral surgery with a high risk of bleeding (see Appendix 2), the opinion of the prescribing physician is required in order to determine the optimal therapeutic strategy (AE).

13. To date, there is no laboratory examination predictive of the risk of surgical bleeding associated with APAs (GRADE A).
Specificities regarding the management of a patient treated with VKAs

14. Continued treatment with vitamin K antagonists (VKAs) is recommended in case of oral surgery with low risk of bleeding (GRADE A for dental avulsions, GRADE B for implant placement and AE for all other procedures). The INR value should be measured ideally within 24 hours, and within a maximum of 72 hours of surgery. It must be stable and less than 4 (GRADE A). In case of overdose (INR greater than or equal to 4) or unstable INR, surgery should be postponed and the prescribing physician informed. Corrective measures must be initiated immediately by the prescribing physician to bring the INR within the therapeutic range.

15. In case of oral surgery with a high risk of bleeding (see Appendix 2), the prescribing physician’s opinion is essential in order to assess the risk of thrombosis. In case of low risk of thrombosis, a therapeutic window of 48-72 hours may be proposed by the prescribing physician. VKAs must be discontinued 24-48 hours prior to surgery (24 hours for acenocoumarol and 48 hours for coumadin or fluindione), the INR controlled preoperatively with a target value less than or equal to 1.5 and VKAs should be resumed as soon as possible, at the latest within 24-48 hours after surgery (GRADE C). In the rare case of surgery with a high risk of bleeding in a patient with a high risk of thrombosis, the initiation of a pre- and postoperative relay VKA treatment with heparin (low molecular weight or unfractionated heparin) at a curative dose is possible in hospitals but must remain exceptional (GRADE C).

16. Pre and post operative drug prescriptions can lead to drug interactions with VKAs. To control pain, paracetamol and opiates may be prescribed. Aspirin and nonsteroidal anti-inflammatory drugs (NSAIDs) are contraindicated because they expose the patient to an increased risk of bleeding when combined with VKAs (GRADE A). To control this risk of infection, sporadic cases of elevated INR have been reported after taking amoxicillin alone or in combination with clavulanic acid, clindamycin, metronidazole, all macrolide antibiotics except spiramycin. The patients must be informed and it is recommended to monitor INR in the days following the prescription (GRADE C). Note that antibiotic prophylaxis (2 g of amoxicillin or 600 mg of clindamycin, 1 hour before surgery) does not change the INR value.
Specificities of the management of a patient treated with DOAs

17. Continued treatment with direct oral anticoagulants (DOA) is recommended in case of oral surgery with low risk of bleeding: dental avulsions, implant placements and for all other procedures (AE).

18. In case of oral surgery with a high risk of bleeding (see Appendix 2), the prescribing physician’s opinion is essential in order to assess the risk of thrombosis. In case of low risk of thrombosis, DOAs can be stopped by the physician the day before surgery and resumed the day after surgery (therapeutic window of 48 hours) (AE). In the rare case of surgery with a high risk of bleeding in a patient with a high risk of thrombosis, a prolonged discontinuation of treatment with DOA with a relay heparin (low molecular weight heparin or unfractionated heparin) in hospitals is possible, but must remain exceptional (AE).

19. To date, there is no laboratory examination predictive of the risk of surgical bleeding associated with DOAs (GRADE A).

20. The prescription of clarithromycin for patients treated with DOAs should be avoided (GRADE C).

Specificities of the management of a patient treated with heparin

21. Continued treatment with heparin (low molecular weight heparin or unfractionated heparin) is recommended in case of oral surgery with a low risk of bleeding (GRADE C for dental avulsions, AE for implant placement and all other procedures).

22. In case of oral surgery with a high risk of bleeding (see Appendix 2) heparins may be discontinued by the prescribing physician before the procedure (6-8 hours before surgery for unfractionated heparins and 24 hours before for the low molecular weight heparins) in order to limit the risk of perioperative bleeding (GRADE C).

23. In case of preoperative discontinuation of heparin therapy, preoperative prescription of activated partial thromboplastin time (aPTT) or of an anti-Xa activity is not necessary (GRADE A).
## APPENDICES

### Appendix 1: Antithrombotic agents (antiplatelet agents and anticoagulants) currently marketed in France in 2015

<table>
<thead>
<tr>
<th>Antiplatelet agents</th>
<th>Indications (MA)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Oral route</strong></td>
<td></td>
</tr>
<tr>
<td><strong>COX-1 inhibitors</strong></td>
<td>- Secondary preventive treatment following MI after de-obstruction (thrombolysis or transluminal angioplasty) in patients for whom aspirin therapy is temporarily contraindicated (e.g., elective surgery). The medical service rendered in this indication is insufficient.</td>
</tr>
<tr>
<td>● <strong>Reversible inhibitor</strong></td>
<td>- flurbiprofen (CEBUTID®)</td>
</tr>
<tr>
<td>● <strong>Irreversible inhibitor</strong></td>
<td>- acetylsalicylic acid (ASPIRIN®, KARDEGIC®, ASPIRIN PROTECT®, ASPIRIN UPSA®, CARDIOSOLUPSAN®, PRAVADUAL®)</td>
</tr>
<tr>
<td><strong>P2Y₁₂ receptor inhibitors of ADP</strong></td>
<td>- Preventive treatment of thromboembolic events associated with atherosclerosis (MI, CVA)</td>
</tr>
<tr>
<td>● <strong>Reversible inhibitors (thienopyridines)</strong></td>
<td>- ticlopidine (TICLOPIDINE®, TICLID®)</td>
</tr>
<tr>
<td>● <strong>Irreversible inhibitor</strong></td>
<td>- clopidogrel (CLOPIDOGREL®, DUOPLAVIN®, PLAVIX®)</td>
</tr>
<tr>
<td>● <strong>Irreversible inhibitor</strong></td>
<td>- prasugrel (EFIENT®)</td>
</tr>
<tr>
<td><strong>Phosphodiesterase inhibitors</strong></td>
<td>- Chronic arterial insufficiency of the lower extremities</td>
</tr>
<tr>
<td>- dipyridamole (ASASANTINE®, CLERIDIUM®, PERSANTINE®)</td>
<td>- Preventive treatment of CVA after transient or established cerebral ischemic stroke, associated with atherosclerosis, not older than 3 months.</td>
</tr>
<tr>
<td><strong>Injection</strong></td>
<td></td>
</tr>
<tr>
<td><strong>GP IIb/IIIa antagonists</strong></td>
<td>- High risk PCI preoperatively</td>
</tr>
<tr>
<td>- abciximab (REOPRO®)</td>
<td></td>
</tr>
<tr>
<td>- eptifibatide (INTEGRILIN®)</td>
<td></td>
</tr>
<tr>
<td>- tirofiban (AGRASTAT®)</td>
<td></td>
</tr>
<tr>
<td><strong>Prostacyclin analogue (PGI₂)</strong></td>
<td>- Treatment of idiopathic pulmonary arterial hypertension in patients in functional Class III</td>
</tr>
<tr>
<td>- iloprost (ILOMEDINE®, VENTAVIS®)</td>
<td></td>
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</table>
### Anticoagulants

<table>
<thead>
<tr>
<th>Oral route</th>
<th>Indications (MA)</th>
</tr>
</thead>
</table>
| **Vitamin K antagonists** (Factors II, VII, IX, X inhibition) | - acenocoumarol (MINI-SINTROM®, SINTROM®)  
- fluindione (PREVISCAN®)  
- warfarin (COUMADIN®)  
- vitamin K antagonists (anti-Xa) |
| **Thrombin inhibitors (anti-IIa)** | - dabigatran (PRADAXA®) |
| **Activated factor X inhibitors (anti-Xa)** | - apixaban (ELIQUIS®)  
- rivaroxaban (XARELTO®) |

<table>
<thead>
<tr>
<th>Injection</th>
<th>Indications (MA)</th>
</tr>
</thead>
</table>
| **Heparins** (Factors IIa and Xa inhibitors) | - Standard or unfractionated heparin (UFH)  
- sodium heparin (HEPARIN CHOAY, PANPHARMA®)  
- calcium heparin (CALCIPARINE®)  
- Low molecular weight heparins, subcutaneous route (LMWH)  
- dalteparin sodium (FRAMINE®)  
- enoxaparin sodium (LOVENOX®)  
- nadroparin calcium (FRAXIPARINE®, FRAXODI®)  
- tinzaparin sodium (INNOHEP®) |
| **Other injectable anticoagulants** | - Pentasaccharide  
- fondaparinux (ARIXTRA®) |
| **Heparinoids** | - danaparoid (ORGARAN®) |
| **Recombinant hirudins** | - bivalirudin (ANGIOX®)  
- desirudin (REVASC®)  
- lepirudin (REFLUDAN®) |

**SFCO/Perioperative management of patients treated with antithrombotics during oral surgery/short text Appendices**
### Appendix 2: Stratification of the risk of bleeding based on the type of surgery and preventive measures.

<table>
<thead>
<tr>
<th>Types of surgeries and invasive procedures</th>
<th>Preventive measures for bleeding complications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Procedures with no risk of bleeding</strong></td>
<td></td>
</tr>
<tr>
<td>• Local anesthesia</td>
<td>- Simple mechanical pressure hemostasis</td>
</tr>
<tr>
<td>• Descaling</td>
<td></td>
</tr>
</tbody>
</table>

**Surgeries and procedures with low risk of bleeding**

(Surgeries for which externalized bleeding is easily controlled by conventional surgical hemostasis*).

<table>
<thead>
<tr>
<th>Procedures with low risk of bleeding</th>
<th>Preventive measures for bleeding complications</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Simple avulsion</td>
<td>Oral and descaling hygiene measures</td>
</tr>
<tr>
<td>• Multiple avulsions in the same quadrant</td>
<td></td>
</tr>
<tr>
<td>• Endodontic and periapical surgery (lesion ≤ 2 cm)</td>
<td>- Conventional surgical hemostasis</td>
</tr>
<tr>
<td>• Mucogingival surgery</td>
<td></td>
</tr>
<tr>
<td>(besides gingival graft with palatine sampling)</td>
<td></td>
</tr>
<tr>
<td>• Pre-orthodontic surgery of impacted tooth, included</td>
<td>- Tranexamic acid</td>
</tr>
<tr>
<td>• Single implant</td>
<td></td>
</tr>
<tr>
<td>• Implant(s) release (healing abutment)</td>
<td></td>
</tr>
<tr>
<td>• Oral mucosa excisional biopsy (≤ 1 cm)</td>
<td></td>
</tr>
</tbody>
</table>

**Surgeries and invasive procedures with a high risk of bleeding**

(Surgeries for which significant blood loss and/or platelet transfusions are reported in the literature, procedures with operating time > 1 hour, critical procedures by their location (maxillary sinus, floor of the mouth) and/or difficult to control with conventional surgical hemostasis*).

<table>
<thead>
<tr>
<th>Surgeries and invasive procedures with a high risk of bleeding</th>
<th>Preventive measures for bleeding complications</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Multiple avulsions in several quadrants</td>
<td>- Same preventative measure as for surgery with a low to moderate risk of bleeding</td>
</tr>
<tr>
<td>• Dental avulsion of impacted teeth</td>
<td>- Medicinal products derived from blood, fibrinogen and human thrombin</td>
</tr>
<tr>
<td>• Multiple implants in several quadrants</td>
<td>- Mono and bipolar electrocoagulation</td>
</tr>
<tr>
<td>• Sinus lift (crestal approach, lateral approach)</td>
<td>- Give preference to minimally invasive surgeries (flapless and guided implant surgery, sinus crestal approach, etc.)</td>
</tr>
<tr>
<td>• Apposition bone graft (in onlay)</td>
<td>- Preoperative 3D imaging (sinus, symphyseal region) in case of implant placement</td>
</tr>
<tr>
<td>• Particulate bone grafting and guided bone regeneration</td>
<td></td>
</tr>
<tr>
<td>• Surgery and soft tissue (sialolithiasis)</td>
<td></td>
</tr>
<tr>
<td>• Enucleation of cysts and benign tumors (lesion &gt; 2 cm)</td>
<td></td>
</tr>
<tr>
<td>• Closing an oral sinus communication</td>
<td></td>
</tr>
<tr>
<td>• Excision of pseudotumors and benign tumors of the oral mucosa (&gt; 1 cm)</td>
<td></td>
</tr>
</tbody>
</table>

**Procedures not recommended**

<table>
<thead>
<tr>
<th>Procedures not recommended</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Inferior alveolar nerve block: not recommended</td>
</tr>
<tr>
<td>• Autologous graft: not recommended due to an additional collection site, give preference to heterologous and synthetic grafts</td>
</tr>
</tbody>
</table>
Contraindicated procedures

- All procedures contraindicated in case of an associated risk of infective endocarditis
- All procedures with a risk of bleeding in the case where the technical equipment available to the surgeon is inadequate
- Bilateral inferior alveolar nerve block: risk of bilateral lateral pharyngeal hematoma and dyspnea
- Symphyseal sampling: risk of hematoma of the floor of the mouth and dyspnea
- Gingival graft with palatine sampling: risk of injury to the palatine artery

* conventional surgical hemostasis: mechanical hemostasis (pressure + sutures) ± local absorbable hemostatic (collagen or gelatin sponge, cellulose gauze) ± synthetic glue (cyanoacrylate glue).

Factors that increase the risk of surgical bleeding: mucoperiosteal detachment beyond the mucogingival line, lingual detachment, avulsion(s) in the inflammation zone, diminished periodontium, duration of surgery > 1 hour (significant blood loss),

Critical locations: floor of the mouth, chin symphysis, maxillary sinus
Appendix 3: Systematic algorithm of the management of patients on antiplatelet agents (APAs) during oral surgery.

**Patients on antiplatelet agents**

- **Monotherapy**
  - Aspirin KARDEGIC®
  - Clopidogrel PLAVIX®
  - For any invasive procedure of Oral Surgery
  - **No discontinuation**
    - Management in general practice

- **Combination**
  - Aspirin KARDEGIC® + Clopidogrel PLAVIX®
  - Aspirin + Clopidogrel DUOPLAVIN®
  - Aspirin KARDEGIC® + Prasugrel EFIENT®
  - Aspirin KARDEGIC® + Ticagrelor BRILIQUE®
  - Surgery with LOW risk of bleeding
    - dental extraction(s)
    - dental implant placement, etc.
    - **No discontinuation**
      - Management in general practice
  - Surgery with HIGH risk of bleeding
    - Cyst and bone tumor surgery > 3 cm
    - Pre-implant surgery
    - Gingival graft, etc.
    - **Opinion of the prescribing physician required**
      - **Lower risk of thrombosis**
        - Requires monotherapy in principle**
          - Management in general practice
      - **High risk of thrombosis**
        - Requires combination therapy in principle
          - Management in the hospital
    - **Defer the surgery**

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* Determining the level of risk of thrombosis available at the website [www.has-sante.fr](http://www.has-sante.fr), « Recommandations : Antiagregants-plaquettaire : prise en compte des risques thrombotiques et hémorragique pour les gestes percutanés chez le coronarien » (“Recommendations: Platelet antiaggregants: consideration of risk of thrombosis and bleeding for percutaneous procedures in coronary patients”) (HAS (Haute Autorité de Santé [French Health Authority]) in November 2013).

** Monotherapy: continue prescribing aspirin, interruption period: clopidogrel: 5 days, prasugrel: 7 days, ticagrelor 3-5 days.
Appendix 4: Systematic algorithm of the management of patients on antivitamin K (VKA) during oral surgery.

Patients on antivitamin K

Acenocoumarol MINISINTROM, SINTROM®
fluindione PREVISCAN®
warfarin COUMADIN®

Surgery with LOW risk of bleeding
dental extraction(s) 
dental implant placement, etc.

Control of INR

INR < 4*
No discontinuation
Management in general practice

INR ≥ 4
Defer the surgery

Low risk of thrombosis**
Contact with the prescribing physician required

Discontinuation of VKA***
Management in general practice

Surgery with HIGH risk of bleeding
Cyst and bone tumor surgery > 3 cm
Pre-implant surgery
Gingival graft, etc.

Opinion of the prescribing physician required

High risk of thrombosis**
Afib with a history of embolism
High risk VTE (proximal DVT, and PE < 6 months, recurrent VTE)
Valvular prosthesis*

Defer the surgery

Discontinuation of VKA and relay with heparin****
Management in the hospital

* For patients with valvular prostheses, implant placement, pre-implant and periodontal surgery are contraindicated.


*** Discontinuation of VKA: Discontinue VKA 4-5 days before the procedure, resumption of VKA in the evening or the day after surgery, perform an INR after 48 hours (HAS 2008)

**** Discontinuation of VKA and relay with heparin: on D-3 discontinuation of VKA, D-3 relay with LMWH (or UFH) with a curative dose, D-1 last injection of LMWH in the morning, UFH in the evening at D0 of the procedure D + 1 resumption VKA and heparin (to be adjusted depending on the risk of bleeding), discontinuation of heparin once the INR target is reached.
Appendix 5: Systematic algorithm of the management of patients on direct oral anticoagulants (DOAs) during oral surgery.

**Patients on direct oral anticoagulants**

Dabigatran etixilate DABIGATRAN®
Rivaroxaban XARELTO®
Apixaban ELIQUIS®

**Surgery with LOW risk of bleeding**
- dental extraction(s)
- dental implant placement, etc.

**Surgery with HIGH risk of bleeding**
- Cyst and bone tumor surgery > 3 cm
- Pre-implant surgery
- Gingival graft, etc.

Opinion of the prescribing physician required

**Low risk of thrombosis**
- Management in general practice
- No discontinuation*

**High risk of thrombosis**
- Management in the hospital
- Discontinuation of DOA and relay with heparin***

* No discontinuation: it is important to specify the age, indication (curative regimen or prevention in orthopedic surgery), the dose and number of doses per day, the time of the last dose, procedure to be performed within the half day preceding the next dose

** Discontinuation of DOA: Discontinue DOA on the day before and on the day of the procedure (therapeutic window of 48 hours).

*** Discontinuation of DOA and relay with heparin: Discontinuation of DOA 5 days before surgery.
Appendix 6: Systematic algorithm of the management of patients on heparins during oral surgery.

**Patients on heparins**

- UHF HEPARIN CHOAY®, CALCIPARINE®
- LMWH FRAXODI®, FRAXIPARINE®, FRAXIPARINE®, INNOHEP®, LOVENOX®

**Preventive treatment of VTE**

- Recent surgery
- Hemodialysis

**For any invasive procedure of Oral Surgery**

- Management in general practice
  - No discontinuation
    - Procedure to be performed within ½ day preceding the next dose

**Curative treatment of VTE**

- Active cancer
- Pregnancy

- Opinion of the prescribing physician required*

**Surgery with LOW risk of bleeding**

- Dental extraction(s)
- Dental implant placement, etc.

- Management in general practice
  - 1 injection/24 hours
  - No discontinuation
    - Procedure to be performed within ½ day preceding the next dose
  - 2 injections/24 hours
  - Defer the morning injection

**Surgery with HIGH risk of bleeding**

- Cyst and bone tumor surgery > 3 cm
- Pre-implant surgery
- Gingival graft, etc.

- Management in the hospital
  - Discontinuation of heparin
    - 6-8 hours before for UFHs
    - the day before for LMWHs
    - Resumption of the hemostatic control

- Defer the surgery

*check whether there are no other risks and precautions.
SFCO/Perioperative management of patients treated with antithrombotics during oral surgery/short text Appendices