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Oral antithrombotics and dentistry: Current state of affairs and guideline proposal

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SUMMARY

Already in 1997 a treatment algorithm for dental treatment in patients on oral coumarin therapy was published, in which was concluded that “most dental treatments can be performed safely in patients undergoing coumarin therapy without the need for hospitalization or cessation of anticoagulant therapy”. Furthermore, a review in 1998 showed that the risk of hemorrhage after dental surgery in patients who are at therapeutic levels of oral anticoagulation is minimal. Since then more and more publications and clinical studies were performed that pointed in the same direction, with an emphasis on local measures, such as suturing and the use of local hemostatic agents to control local bleeding. The new insights that emerged from these publications are summarized in **Chapter 2** of this thesis. It overviews the different oral antithrombotic medications used in the Netherlands, the monitoring of vitamin K antagonists (VKA's) through International Normalized Ratio (INR) and the risks of bleeding complications versus (re-) thrombosis complications when interrupting oral antithrombotics prior to dental procedures. We concluded that there is a need for a widely supported, preferably evidence-based Clinical Practice Guideline (CPG) for the dental profession.

In **Chapter 3** we describe a systematic search for guidelines in the international scientific literature. Because guidelines need to fulfill certain quality criteria, before they can be accepted as evidence-based, we assessed their quality with the AGREE (Appraisal of Guidelines for Research & Evaluation) instrument. The results from this study showed that two evidence-based clinical practice guidelines, both published in 2007, met the quality requirements of AGREE. The recommendations from these guidelines with subsequent levels of evidence were acknowledged as useful for future country-specific guidelines.

Most clinical studies on bleeding complications during or after invasive dental treatment up until 2005, were done in patients using VKA. There was a lack of good clinical studies, especially of randomized controlled trials, in procedures in patients using acetylsalicylic acid (ASA) or double antiplatelet therapy. In recent years, more studies were published, of which the results are summarized in a systematic review, published in 2012, which is described in **Chapter 4**. Here we deduce that there is

enough evidence from clinical studies to conclude that neither single, nor double antiplatelet therapy needs to be interrupted prior to most invasive dental procedures. To assess the opinions of dentists at that time (2008) on the management of patients on antithrombotic medications needing an invasive dental treatment, we surveyed a representative sample of Dutch general dentists, a study which is described in **Chapter 5**. As we expected, Dutch dentists have a wide variety of treatment modalities in patients on OAM. Most of them were cautious to treat patients without interrupting OAM, and they consulted with medical colleagues frequently about antithrombotic medication. Many dentists refer their patients on OAM to oral surgeons. More than 50% of dentists were not familiar with INR values and more than 90% felt a need for a clinical practice guideline on this topic.

Dutch dentists stated in the 2008 survey, that they consult about and refer their patients on OAM to oral and maxillofacial surgeons (OMS). Therefore, we wondered what the management strategies of the Dutch OMS's were. A comparable survey was sent in 2009 to all members of the Dutch Society for Oral and Maxillofacial Surgery (NVMKA) and the results are described in **Chapter 6**. As in the general dentists group, the Dutch OMS's had varying management strategies, very often implying discontinuation of OAM, even in simple dental extractions. Bleeding risks after invasive treatment were overestimated. No statistically significant differences were found between management strategies in district hospitals or university hospitals, except that surgeons from district hospitals were more concerned with limited bleeding in major invasive procedures in patients using VKA. Seventy three percent of OMS's expressed a need for a Dutch CPG.

In **Chapter 7** we propose a CPG for the Dutch dental practitioner, based on levels of evidence until October 2012 and we provide recommendations for treating dental patients using oral antithrombotic medication. Recently, new oral anticoagulant medications (NOAC's) have been developed and studied in clinical trials. Dentists will soon be confronted with patients using these new medications. In our proposed CPG we also include recommendations for these medications.

In the near future, the presently proposed CPG needs to be continuously evaluated and updated by all stakeholders, such as dentists, oral and maxillofacial surgeons, patients and guideline specialists. Recently, we bundled the recommendations that

had sufficient evidence-levels, into the "ACTA guideline" (**Appendix 1**) and published an earlier version on the ACTA website in 2010.

In **Chapter 8** we discuss the findings of the preceding chapters and the possibilities for the near future.

In conclusion: this thesis describes the past, current and future management of dental patients using oral antithrombotic medication by giving an overview of the relevant dental and medical scientific literature, by describing the opinions and management strategies of Dutch dentists and oral and maxillofacial surgeons and – based on all results – by formulating recommendations for an evidence-based clinical practice guideline for dentists when performing invasive dental treatment in patients on oral antithrombotic medication.