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## ORAL ANTICOAGULANT THERAPY RELATED TO ORAL SURGERY PROCEDURES

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**Summary:** Today there must be established protocol in oral surgery treatment for the patients which are under anticoagulant treatment via oral (ATO). This is due to danger of the possible complications and also for increased demand for hospital treatment of these patients, which can be estimated now days as high as 8%. In the present study, the authors intent to define all the parameters for creation of one acting protocol applicable to this group of patients and concluding that there is no necessary need to suspend ATO previously to oral surgery procedures, moreover these procedures ought to be performed under interdisciplinary medical control.

**Key words:** Oral anticoagulant therapy, tranexamic acid, oral surgery.

### INTRODUCTION

The study was elaborated during the period from five years, beginning in the 2003.

The oral anticoagulants are in use for treatment of venous thromboembolism as well as for the prevention of systemic infarcts and embolisms in the patients with auricular fibrillation, cardiac and valves disease or in the patients with metallic prosthesis of valves (1).

There is a substantial risk of haemorrhage, when these patients with oral anticoagulant treatment (OAT), need to be treated with some oral surgery procedure. During the time there was always dilemma whether to suspend the dose of the anticoagulant risking thus the thromboembolism agent or maintain the same treatment increasing the possibility of postoperative bleeding.

Now days, the most used oral anticoagulant agent is warpharine sodium, although it requires close control of laboratory analysis of the patients, because its activity could be affected from various factors including thus the individual reaction of the patient, the diet regime as well as simultaneous administration of other medicaments. As a main monitoring tool, the prothrombine time (PT), is use, although, from 1983, WHO recommends the use of International Normalized Ratio (INR), like a unifying form that standardizes the PT from different laboratories (2).

In this article we present our experience in attitude on treatment of these patients.

### MATERIAL AND METHOD

To realize this analysis the SPSS 9.0 statistic programme was used. For the valuation of quality variables, relative, absolute frequency and percentage were determined; for the quantity variables the central tendency measure was calculate as well as the measure of standard dispersion.

This study was elaborated and realized in the Departments of Oral and Maxillofacial Surgery and Haematology as well as in Unit for Investigation of University Hospital Insular of Las Palmas, Canary Islands, Spain, with collaboration of Military Medical Academy staff, Belgrade, Serbia as well as Medical University of Nis Serbia, previously approved from Commission of Investigation of the same hospital and with consent from all patients included in.

We included all patients which needed to undergo oral surgical procedures and who were also in OAT with accnocumarol (Sintrom® Geigy) and were previously controlled in the Haematology Department. These patients were sent to the Department of Oral and Maxillofacial Surgery to set a date for ambulatory intervention. On the indicated day, the INR was measu-

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red to assure that the results were within range, according to the basic pathology of the patient. If it was, the surgical intervention was performed immediately. Local anaesthesia of 4% articaine with epinephrine (Nibs<sup>®</sup>) was used. The local haemostasis methods were initially defined by the Haematology Department, regardless of the number of teeth to be extracted and the possible complexity of the intervention. Both the osteotomy and leverage during surgical procedure were considered as complex extraction. By doing so, we avoided using a lower level of haemostasis that was dependent solely on the surgeon's impressions. After surgery, the patients received a synthetic antifibrinolytic agent, tranexamic acid (Anchafibrin<sup>®</sup> Fides), first as local compression and afterwards as a mouth rinse, for 2 minutes every 6 hours during two days. The post-surgical haemorrhage was classified as low when it lasted less than 5 minutes after surgery, moderate when it lasted over 5 minutes, and severe when it required a transfusion.

For measurement of the existent association between two quality variables, the Chi square with the confidence level of 95% was applied. To measure the degree of the association the Odds Ratio was employed. For the determination the difference between the quantity variables the T Student test was used. The confidence level used in analysis was of 95%.

In the cases where antibiotic prophylaxis due to endocarditis was needed, usually Amoxicillin (Clamoxyl<sup>®</sup> Smith-Kline Beecham) was recommended, and given in doses of 2 g orally one hour before the intervention and 1 g six hours after the intervention. When the allergy to penicillin was reported, erythromycin (Pantomicin<sup>®</sup> Abbot) was administered, 2 g before intervention and 1 g six hours after surgery. When it was possible, antibiotic treatment was not applied for longer periods of time; to avoid adverse interactions and possible delayed haemorrhage. There have been reports of delayed haemorrhage in patients who were given OAT and amoxicillin at the same time (3, 4, 5).

## RESULTS

During the years 2003-8 in our Department 96 patients with ATO were attended. Fifty seven of them were males and 39 females with the age between 23 and 85 (average 61, 26). Between 1 and 6 teeth were extracted during one session, with average 1,8 extraction per session (Table 1). The principal disease of patients and the basic reason for ATO is indicated in the Table 2. In the Table 3 the associated pathologies of the patients are presented. The INR before the oral surgery is summarized in the Table 4. Fourteen from 96 procedures were considered as a complicated. Regarding on

N <sup>o</sup> of the tooth extractions per session	N <sup>o</sup> of the patients	Total extractions
1	38	60
2	21	41
3	15	31
4	12	23
5	6	13
6	4	12
TOTAL	96	180

Table 1. Number of tooth extractions

Basic disease	Frequency	%
Auricular fibrillation	42	43.6
Cerebro-vascular insult	11	11.5
Pathology of valves	9	9.4
Valvular prothesis	9	9.4
Isquezmie cardiopathy	5	5.2
Pulmonar Thromboembolism	6	6.3
Dilated myocardiopathy	7	7.3
Other	7	7.3
TOTAL	96	100

Table 2. Basic disease

Associated Pathology	Frequency	%
Arterial hypertension	17	17.7
Diabetes Mellitus	2	2.1
Oncologic Pathology	2	2.1
Hepatopathies	1	1.0
Other	29	30.2
TOTAL	53	53.1

Table 3. Associated pathology

INR	Frequency	%
1.00-1.99	71	74
2.00-2.49	15	15.6
2.5-3.00	10	10.4
TOTAL	96	100

Table 4. INR before tooth extraction

the type of haemostasis performed we concluded that there were 86 cases (89.6%) with slight haemorrhage, 8 (8.3%) were moderate haemorrhage cases and two of them (2.1%) were cases with severe haemorrhage (Table 5).

Type of haemostasis	Patients	%	Haemorrhage		
			Slight	Moderate	Severe
Suture	9	9.4	8	1	
Compressive gauze	21	21.9	20	1	
Surgicel® + Amchafibrin®	3	3.1	3		
Compressive gauze + Amchafibrin®	18	18.8	16	1	1
Surgicel®	14	14.6	11	3	
Suture + Amchafibrin®	7	7.3	6	1	
Comp. gauze + suture + Amchafibrin®	15	15.6	13	1	1
Surgicel® + suture	8	8.3	8		
Amchafibrin®	1	1.0	1		
TOTAL	96	100	86	8	2

Table 5. Type of hemostasis and haemorrhage

All the variables, INR before surgery number of tooth extractions in one session, existence of traumatism during teeth extractions, administration of endocarditic prophylactic treatment as well as the type of post surgical haemostasis, were compared and analysed, and no statistically significant differences or relationships were found.

## DISCUSSION AND CONCLUSION

The oral surgery procedures in the patients with OAT were always controversial, due to dilemma between the high risk of haemorrhage versus possibility of embolism should the ATO be suspended (6). Some author recommend not to change the ATO treatment (7, 8, 9, 10) while the others propose suspension of OAT during several days before the surgical procedure (11, 12, 13, 14, 15), or substitution with heparin in the patients with high level of risk (16, 17).

In the current literature there are more than 500 articles advocating the suspension of ATO for oral or dental surgery interventions (18). Although the majority of these patients did not have any complication, four of them died due to embolism sequels, and another one suffered two episodes of embolism. Certainly, this percentage is very (approximately 1%) low but such grave sequel of tooth extraction, obliges that attention should be very high when doing this.

Sindet-Pedersen et al in 1989 (19) in their study recommended the use of gauze, soaked with tranexamic acid, immediately after tooth extraction, combined with local pressing few minutes and posterior use of oral rinse devices during one week, method used also by others (20, 21, 22, 23, 24). Nevertheless, Souto et al. in 1996 compared the treatment that is realized in 92 patients in which the ATO was not reduced, with the ones where it was substitute for heparin adequate dose,

and reported no haemorrhage complications in spite of reducing mouth rinsing from 7 to 2 days (25). Different from these publications, we did not use as a routine gauze and suture over the wounds, rather these were used randomly and even we prescient of them, without observing any increase of complications.

Contrary, from 2400 cases of dental surgery procedures reported and realised in 950 patients without ATO suspension, there were only 12 complications of haemorrhage described, and treated very well (18).

The tranexamic acid is generally well tolerated by the patients. The adverse effects of it are rare and if occur they manifest as nausea, diarrhoea and occasionally as orthostatic arterial hypotension (26). In our study, the tranexamic acid was used only locally so we did not have any complain on it nor we have seen any complication.

Other authors do not use the tranexamic acid, instead they perform haemostasis with gelatine resolvable sponge, suture and fibrin adhesives (Tissucol®; Immuno), having good results, although more costly ones (27, 28). Nevertheless, these systems of haemostasis, recently have been pulled off from use due to risk of transmitting certain diseases, as well as for its elevated cost of production, opting thus for dense autologous fibrin. Through the process of centrifuging the autologous blood could be obtained different fractions of blood plasma. These are activated by calcium chloride resulting in a coagulum in which is forming autologous dense fibrin serving as a plug in the post extraction alveolus.

In some publications it is described a quantitative measurement, in millilitres, of haemorrhage (6). We did not have as objective to measure bleeding but only the time of visible post surgical haemorrhage.

We did not find any significant difference in relation with postoperative haemorrhage and the type of haemostasis done. In that we coincide with some aut-

hors that in the majority of cases it is sufficient to apply haemostatic gelatine sponge over the wound or to suture it (29, 30).

Regarding to a previous control of INR, we followed instructions from Wahl et al, and we obtained in the majority of patients values between 2 and 3, and 2.5–3.5 in the patients with prosthesis of the valves.

Certainly there is an evident necessity to make a protocol for oral surgery procedures in the patients with ATO, as much for serious complications of these

and also to answer on increased frequency demand to resolve this pathology as well, which can be quantified as 8% of all patients that are referred to hospitals from ambulatories (31). We consider that, in the patients with ATO, it should not be suspended previously to the oral surgery if this is to be performed in hospitals, having a multidisciplinary approach for a patient's control (32), particularly to the patients over 65 years and/or with concomitant pathology as kidney disease, anaemia or prolonged medicamentous treatment.

## Sažetak

# TERAPIJA ORALNIM ANTIKOAGULANTIMA U VEZI SA PROCEDURAMA U ORALNOJ HIRURGIJI

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Danas mora da postoji određen protokol u oralnoj hirurgiji za pacijente koji su na terapiji oralnim antikoagulantima. Razlog je povećana opasnost od mogućih komplikacija, kao i povećana potreba za bolničkim lečenjem ovih pacijenata, za koju se ovih dana procenjuje da iznosi da 8%. U ovoj studiji, namere autora su da definišu sve parametre potrebne za kreiranje protokola

primenjivog kod ove grupe pacijenata, zaključujući da je nepotrebno prekinuti terapiju oralnim antikoagulantima pre hirurških oralnih procedura, štaviše ove procedure bi trebalo da se izvrše pod interdisciplinarnom medicinskom kontrolom.

**Ključne reči:** terapija oralnim antikoagulantima, transkamsična kiselina, oralna hirurgija.

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