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Antibiotics in third molar surgery

A survey among Swiss dentists

KEYWORDS

mandibular third molar,
prophylactic extractions,
antibiotic prophylaxis,
survey

SUMMARY

The aim of this survey was to assess the knowledge and practice of Swiss dentists focusing on the use of antibiotics in prophylactic surgical removal of lower wisdom teeth.

A postal survey was conducted among all 3288 dentists who are members of the Swiss Dental Society (SSO) representing nearly all dentists in Switzerland. The questionnaire consisted of 13 questions with mostly multiple-choice answers. Demographic profile, surgical experience, the use of antibiotics, and wound management, i.e. wound closure and the use of mouth rinse were assessed.

A response rate of 55% was obtained. Most Swiss dentists perform surgical extractions in their practices. Of all dentists, 18.6% used antibiotics routinely, but a large variation was found comparing the three linguistic regions of Switzerland with the highest prescription rate of 48% in the French-speaking south-west of Switzerland.

Fifty-two percent of dentists prescribed amoxicillin in a dose of 750 mg. Most often three daily doses were prescribed (47%). A postoperative regime was prescribed by 54.4% of dentists. French language ($p=0.003$), graduation from the university of Geneva ($p=0.007$), foreign diplomas ($p<0.001$), and dentists with diplomas awarded from 2001–2006 ($p=0.004$) showed a highly significant correlation with the use of antibiotics. In Switzerland, prophylactic antibiotics are used in third molar surgery. Antibiotic prescription however largely depends on geographical situation and dentist profiles.

The assessment of antibiotic use in private practices is important in the light of growing evidence that antibiotic overuse may lead to development of multiresistant bacterial strains. In a second part results regarding wound management and mouth rinse will be presented.

Introduction

Prophylactic extractions of wisdom teeth is a frequently performed routine procedure in the dental practice. In the UK, in 1994/95 about 100,000 patients were scheduled for surgical tooth removal (NATIONAL INSTITUTE FOR CLINICAL EXCELLENCE 2000). In Sweden about 20,000 operations of mandibular third molars (MTM) are performed per year at oral and maxillofacial surgery clinics (NORDENRAM ET AL. 1987). Ninety percent of all interventions in specialist practices were wisdom tooth removals (EKLUND & PITTMAN 2001). Alveolar osteitis or wound infection are the most important postoperative complications ranging from 2.59%–32.5% (KREKMANOV & HALLANDER 1980, PAJAROLA & SAILER 1994, PAJAROLA ET AL. 1994, ARRIGONI & LAMBRECHT 2004, VOEGELIN ET AL. 2008). Risk factors for postoperative complications have been assessed and patient age as well as gender, oral contraceptives, smoking, oral hygiene, difficulty of surgery, tooth anatomy and position, therapeutic or prophylactic indication for extraction, wound management, and surgical experience are reported to influence postoperative complication rates (AL-KHATEEB ET AL. 1991, PAJAROLA ET AL. 1994, ALEXANDER 2000, ARRIGONI & LAMBRECHT 2004, VOEGELIN ET AL. 2008, FREUDLSPERGER ET AL. 2012). In the literature, the use of antibiotics either systemically or locally is suggested in order to minimize postoperative complications (FRIDRICH & OLSON 1990, LACASA ET AL. 2007, REN & MALMSTROM 2007). Systemically, amoxicillin and the combination with clavulanic acid, clindamycin or metronidazole, and combinations of various dosages are used (BERGDAHL & HEDSTRÖM 2004, POESCHL ET AL. 2004, ARTEAGOITIA ET AL. 2005). Studies have investigated the use of antibiotics either several days preoperatively, as single shot or postoperatively or in a combination and different antibiotic treatment lengths were investigated (SEKHAR ET AL. 2001, POESCHL ET AL. 2004, LACASA ET AL. 2007, LUACES-REY ET AL. 2010, SIDDIQI ET AL. 2010, LOPEZ-CEDRUN ET AL. 2011). However, a consensus was not reached whether prophylactic systemic antibiotics may lower postoperative complications. Importantly, bacterial strains resistant to antibiotics and the possible systemic side effects advocate a very cautious use of antibiotics (BLUM 2002, ALEKSHUN & LEVY 2007). Concerning the postoperative wound management, a wide range of treatment methods is in use. Wound closure, wound drainage, and the use of intra-alveolar dressings and mouth rinse have been investigated with varying results (ALEXANDER 2000, CASO ET AL. 2005, VOEGELIN ET AL. 2008, DANDA ET AL. 2010).

Currently there is a lack of data in Switzerland regarding the use of antibiotics and wound management in prophylactic wisdom tooth extractions in dental practices.

Therefore, the aim of this survey among all members of the Swiss Dental Society (SSO), including board certified oral surgeons, was to elucidate the peri- and postoperative management in prophylactic MTM surgery. Dentists were asked about the prescription of systemic antibiotics, wound closure, wound drainage, and mouth rinse. In a first part, we present the results focusing on the use of systemic antibiotics. In the second part, we will report the results focusing on wound closure and the use of mouth rinse.

Materials and Methods

Study design and participants

A questionnaire-based survey among all members of the Swiss Dental Society (SSO) was conducted. All dentists registered on the mailing list in January 2012 were identified. In total, 3288 members of the SSO received an anonymous two

page survey with an introductory letter and a return envelope. The questionnaire and letter were compiled either in German, French, or Italian and sent to the dentists according to their language registered at the dental society. There were 2526 German-, 619 French-, and 143 Italian-speaking dentists. We also addressed all 125 certified oral surgeons and waited for the return of the questionnaire for a period of three months. A reminder was not sent.

Questionnaire

A clinical case of a 17 year old healthy female scheduled for prophylactic surgical extraction of a vertically, partly bony impacted left MTM was presented to the dentists. The participants were advised to fill in the question form according to their personal treatment plan. There were five sections with multiple questions (Fig. 1). Most questions were multiple-choice type and where necessary written comments were allowed. Questions were categorized in five groups. 1) Personal data including university where dental training was accomplished and location of the practice. 2) Surgical experience regarding the number of monthly prophylactic MTM surgical extractions. 3) Use of prophylactic systemic antibiotics and length of treatment. 4) Wound closure and use of drainage or alveolar dressing. 5) Use of mouth rinse. Dentists who did not perform any extractions were not considered in the results of questions three to five. Clinical photographs of wound closure were added to the questionnaire in order to facilitate understanding. The survey was returned to our clinic by mail.

Statistical analysis

All returned questionnaires were statistically analyzed. A logistic regression model was fitted to assess the influence of covariates on the use of antibiotics at a significance level of 0.05. The analysis was performed using the statistical computing environment R, Version 2.15.1.

Results

Dentist profiles

In this survey, all 3288 members of the Swiss Dental Society were included. In total, there were 1795 respondents representing 55% of all SSO members. The response rate of oral surgeons was higher (73%). There were 1380 German-speaking respondents. A total of 315 French-speaking and 100 Italian-speaking colleagues replied (Tab. I). The median respondents age for the three linguistic regions was 51, 53, and 52 years for the German-, French- and Italian-speaking respondents with a mean experience in dental practice of 24, 26.5, and 27 years. The response rate of German-, French-, and Italian-speaking dentists was 55%, 51%, and 70% respectively.

Most diplomas were awarded by four Swiss universities with a dental faculty, representing 85% of all SSO members. Thirty-two percent of diplomas were awarded by the University of Zürich, 23% Berne, 16% Basel, and 14% Geneva. Fourteen percent of dentists received their dental diplomas abroad. Fifty percent of non-Swiss diplomas were issued in Germany, followed by 9% of French diplomas. Italian and Austrian diplomas were rare with 3%. Thirty-eight percent of foreign dentists held diplomas issued by universities in northern Europe.

Experience level

The percentage of all dentists who extracted 1–5 MTM surgically per month was 49.9% whereas 12.7% always referred patients

1 – Personal profile

Date of birth:

Year of issue of dental qualification:

University: Basel Berne Geneva Zurich
 other university (country):

Location of practice (Canton):

Are you a board certified Oral Surgeon (SSO)? Yes No

2 – Surgical experience (single answer only)

Number of surgical prophylactic extractions of impacted or partially erupted mandibular third molars

per month

1–5 teeth 6–20 teeth >20 teeth
 Referral to specialist

3 – Antibiotics (multiple answers possible)

No antibiotics (if appropriate proceed to section 4)

Preoperatively

24 h preoperatively 1 h preoperatively other

Postoperatively

1–3 d 3–7 d >7 d

Dosage

Morning–noon–evening Morning–evening other

Active principle (product name)

Amoxicillin (i.e. Clamoxyl®):

500 mg 750 mg 1000 mg

Amoxicillin with clavulanic acid
 (i.e. Augmentin®, Co-Amoxicillin®, Aziclav®):

625 mg 750 mg 1000 mg

Clindamycin (i.e. Dalacin C® 300 mg)

Metronidazole (i.e. Flagyl®): 250 mg 500 mg

Other: Dose:

4 – Wound closure (single answer only)

Open healing (sutureless)

with Jodoform–Vaseline–Drainage
 with Terra–Cortril–Drainage
 other drainage
 without drainage, blood cloth only

Semi-closed (few sutures, Fig. 1a)

with Jodoform–Vaseline–Drainage
 with Terra–Cortril–Drainage
 other drainage
 without drainage, blood cloth only

Primary wound closure (multiple sutures, Fig. 1b)

resorbable socket dressing, non medicated (i.e. collagen)
 medicated socket dressing (i.e. antibiotics, CHX)
 blood cloth only

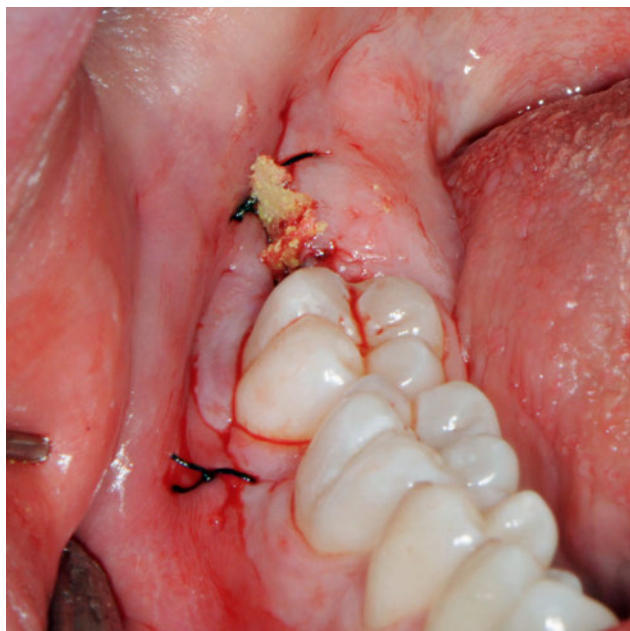


Fig. 1a: semi-closed wound closure



Fig. 1b: primary wound closure

5 – Mouthrinse (multiple answers possible)

No mouthrinse

Chlorhexidine: 0.05% 0.1% 0.2% other concentration:%

Other:

preoperatively (hours to days) immediately preoperatively postoperatively (multiple days)

Fig. 1 Questionnaire

Tab. I Dentist profiles in linguistic regions in Switzerland: x0.25, x0.75: 25 and 75 percentiles

	German-speaking		French-speaking		Italian-speaking	
Respondents	1380		315		100	
Total number of dentists	2526		619		143	
Response rate	55%		51%		70%	
	Age	Years after graduation	Age	Years after graduation	Age	Years after graduation
Min.	24	1	29	3	32	7
x0.25	44	16	46	19	47	21
Median	51	24	53	26.5	52	27
x0.75	58	31	60	33	61	34
Max.	88	62	73	47	81	54

to specialists for extractions. The percentage of practitioners who reported 6–20 MTM monthly extractions in their practice was 27.6%. Seven percent of practitioners extracted more than 20 MTM per month. Dentists who did not perform extractions were not considered in the following results.

Antibiotics

Regarding systemic antibiotics, 81.4% of all dentists did not use these prophylactically on a routine basis. In contrast, 18.6% always prescribed antibiotics. We calculated the percentage of antibiotic non-prescribers and antibiotic prescribers of each of the three linguistic regions in Switzerland (Fig. 2). The values are 87.5% and 12.5% respectively in the German-speaking region. French-speaking dentists accounted for 52% and 48%. Italian-speaking dentists accounted for 79.8% and 20.2%. The three linguistic regions showed statistically significant differences. Increased antibiotic prescription was associated with French language ($p=0.003$), alumni of the University of Geneva ($p=0.007$) and Basel ($p=0.037$). The cantons of Geneva ($p=0.004$), Neuchâtel ($p=0.01$), and Berne ($p=0.04$) showed a significantly higher use of antibiotics. Three cantons representing the language regions show large differences in the prescription of antibiotics. In Zürich, the prescription rate was 8.7%, in Ticino 19.8%, and in Geneva 69.1%. Comparing different levels of experience in practice, young dentists with diplomas re-

ceived from 2001 to 2006 prescribed antibiotics significantly more often ($p=0.004$). Dentists who graduated abroad showed a significantly increased number of antibiotic prescriptions ($p<0.001$). Results are listed in Table II.

Prior to surgery, only 7.4% of antibiotic prescribers used prophylactic antibiotics and 36.8% used pre- and postoperative antibiotics. A postoperative antibiotic regimen only was applied by 54.4%. A percentage of 5.7% of dentists prescribed antibiotics for a duration of 1–3 days postoperatively, 31% for 3–7 days, and 2.1% for more than 7 days.

Amoxicillin was used most frequently (45.7%). Amoxicillin with clavulanic acid was prescribed by 33.7% of dentists followed by clindamycin (14.5%). Other groups of antibiotics were prescribed by 6.1% of practitioners. Four dentists prescribed penicillin or tetracyclin. Two dentists chose cotrimoxazol and spiramycin. One of the colleagues prescribed sulfonamide and another cephalosporin. The three linguistic regions showed the following distribution of amoxicillin, amoxicillin with clavulanic acid and clindamycin and other antibiotics: 31.8%, 36.4%, 21.2%, and 10.6% in the German-speaking region and 65.8%, 25.6%, 7.7%, and 0.9% in the French-speaking region and 29.4%, 64.7%, and 5.9% in the Italian-speaking region (Fig. 3).

Within each antibiotic group, dosing varied largely. Dosing for amoxicillin was most often 750 mg (52%). Twenty-four percent of dentists prescribed 1000 mg, 16% prescribed 500 mg,

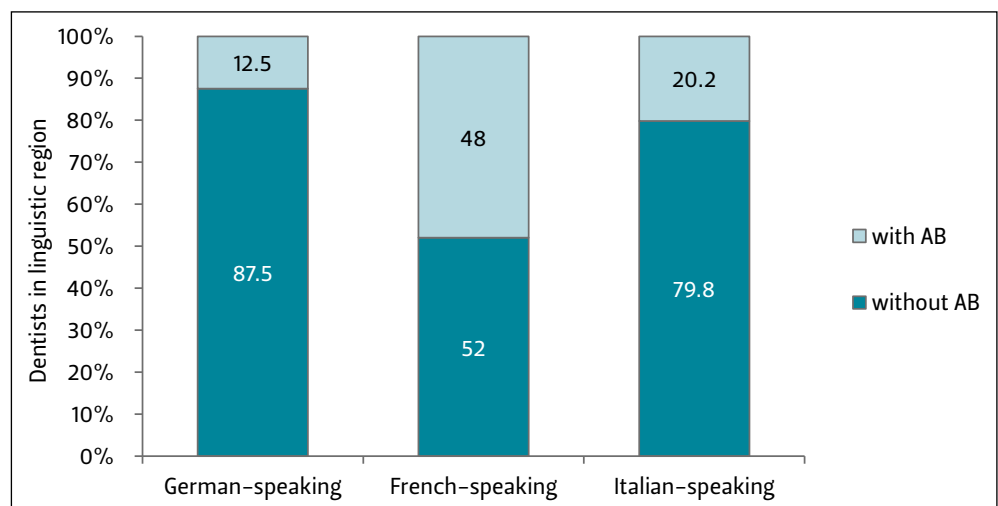


Fig. 2 German-, French-, and Italian-speaking dentists and the percentage of use and non-use of antibiotics in lower third molar surgery. AB: antibiotics

Tab. II Association between antibiotic prescription of Swiss dentists in mandibular third molar (MTM) surgery and independent variables; surgical experience: self-reported monthly number of extracted MTMs; multiple logistic regression model

	OR	95% CI	p-Value
Linguistic region			
German-speaking	1.00		
French-speaking	2.66	1.40–5.03	0.003*
Italian-speaking	1.63	0.75–3.56	0.217
Year of graduation			
<2000	1.00		
2001 to 2006	1.90	1.22–2.93	0.004*
2007 to 2012	2.89	0.96–8.61	0.059
University			
Zürich	1.00		
Basel	1.80	1.04–3.16	0.037*
Berne	1.49	0.87–2.54	0.147
Geneva	3.03	1.36–6.73	0.007*
Foreign	2.61	1.50–4.58	<0.001*
Oral surgeon			
yes	1.00		
no	1.39	0.68–2.84	0.372
Surgical experience			
1–5 third lower molars	1.00		
6–20 third lower molars	0.88	0.61–1.27	0.484
>20 third lower molars	0.82	0.41–1.65	0.581

* significance (significance level 0.05); OR: odds ratio; CI: Confidence interval; the column OR gives the odds ratios for antibiotic prescription in the indicated group compared to the base group (the first group in each block)

and 3% of dentists prescribed 375 mg respectively. Regarding amoxicillin with clavulanic acid a dose of 625 mg was prescribed by 48% of dentists and 42% prescribed a dose of 1000 mg. Clindamycin was prescribed in a dose of 300 mg, as it is only available in this dosage in Switzerland for oral administration. There were no prescriptions of metronidazole. Forty-seven percent of dentists prescribed three daily doses of the antibiotics, 28% prescribed two daily doses and only 1.4% prescribed a different regimen that was not further specified.

Discussion

Removal of wisdom teeth is a standard procedure in oral surgery, which is routinely performed by general dental practitioners and oral as well as maxillofacial surgeons. The use of antibiotics in third molar surgery is discussed controversially in the literature (SEKHAR ET AL. 2001, BLUM 2002, REN & MALMSTROM 2007). A survey on the use of antibiotics in wisdom tooth surgery was never done in Switzerland up to now. In total, 3288 members of the SSO received a survey on the use of prophylactic antibiotics and wound management in MTM prophylactic extractions. We were able to achieve a rather high response rate in our survey of 55%, representing 1795 SSO-dentists.

Surveys among Swiss dentists on other subjects conducted since 2005 had response rates of 30%–50% (ZAHER ET AL. 2005, LAMBRECHT ET AL. 2010, SCHRÖEN ET AL. 2011). Comparing response rates of other European countries a large British survey of general dental practitioners showed a response rate of 60.4% representing 1338 dentists (PALMER ET AL. 2001). The Spanish Endodontist Association questioned dentists about the prescription of antibiotics in endodontic procedures and reported an overall response rate of 31.1% (RODRIGUEZ-NUNEZ ET AL. 2009).

In dento-alveolar surgery, there are recommendations for the use of antibiotics in specific indications. Cases of prolonged duration of surgery, operations with a higher risk of contamination or compromised health, such as patients at risk of endocarditis should receive antibiotic prophylaxis (LAMBRECHT 2004, FLÜCKIGER & JAUSSE 2008). Antibiotic prophylaxis is either administered as single-shot and can be extended postsurgically for up to 48 hours if required. A single-shot dose should be timed one

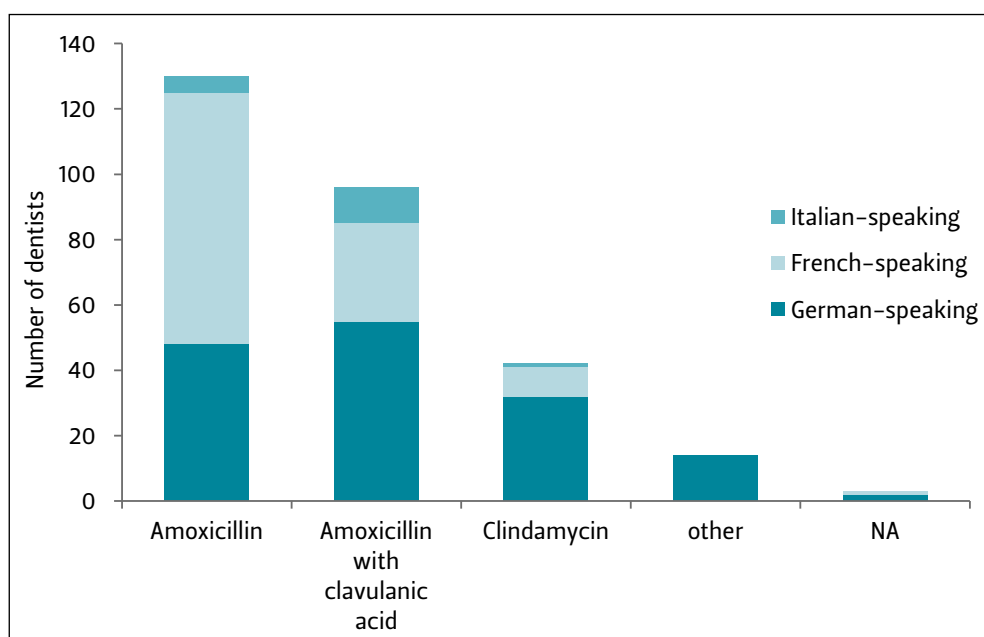


Fig. 3 Antibiotics used in the three linguistic zones in Switzerland. NA: not applicable/specified

hour before incision to achieve a maximum of tissue concentration when surgery is performed. Further, in the case of certain systemic conditions, e.g. immunosuppression, radio-, and chemotherapy antibiotic prophylaxis is recommended (LAMBRECHT 2004). Patients with certain cardiac diseases can be in high risk of endocarditis due to dental procedures. Lately guidelines for antibiotic prophylaxis have been updated leading to a more restrictive use of antibiotics (WILSON ET AL. 2007). Thus, there should be no need for antibiotics in prophylactic MTM surgery for healthy patients. For septic wounds, after trauma or in severe dental infections however, an antibiotic therapy may be indicated with suitable antibiotics until infection is managed (FINE ET AL. 1998, LAMBRECHT 2004).

Postoperative complications after wisdom tooth extractions as alveolar osteitis or surgical site infection may appear. Alveolar osteitis (AO), alveolitis sicca, or dry socket are synonyms of the most common postoperative complication after MTM extractions. It is defined as postoperative pain in and around the extraction site, which increases in severity at any time between 1 and 3 days after the extraction accompanied by a partially or totally disintegrated blood clot within the alveolar socket with or without halitosis (BLUM 2002). The rate of alveolar osteitis after MTM surgery is reported between 2.59%–32.5% (KREKMANOV & HALLANDER 1980, PAJAROLA ET AL. 1994, ARRIGONI & LAMBRECHT 2004, VOEGELIN ET AL. 2008). In recent studies a much lower incidence of 2.59%–4.2% was found without any prophylactic antibiotics in combination with a semi-closed wound management and iodoform-vaseline drainage (VOEGELIN ET AL. 2008, ARRIGONI & LAMBRECHT 2004).

In our survey, amoxicillin was the antibiotic of first choice among dentists with a prescription rate of 45.7%. Second came a combination of amoxicillin with clavulanic acid at 33.7%. Clindamycin was used by 14.5% of dentists. Interestingly, none of the respondents used metronidazole or a combination. Other antibiotics were used very rarely such as penicillin V, tetracyclin, macrolides, sulfonamide, or cephalosporin and represented only 5% in our survey.

These findings are partly in accordance with the overall sales of antibiotics in Switzerland in 2004. Penicillins represented 43.5% of all antibiotics sold in ambulatory care (FILIPPINI ET AL. 2006). In the European comparison, Belgian dentists questioned in a survey mainly used the same antibiotic groups but with a different distribution. Amoxicillin was used in 51.1% and 24% prescribed amoxicillin with clavulanic acid. Clindamycin was only mentioned by 6.6% of participants (MAINJOT ET AL. 2009). In the UK, 22.2% of dentists prescribed metronidazole ranging second after amoxicillin (PALMER ET AL. 2000).

Dentists practising in the canton of Geneva prescribed antibiotics most often ($p=0.004$) and also French language was correlated positively with the use of antibiotics ($p=0.003$). Forty-eight percent of French-, and 20.2% of Italian-speaking dentists prescribed antibiotics compared to 12.5% of German-speaking dentists. This is in accordance with findings of a study of total sales of antibiotics in Switzerland. Comparing the different regions it has been stated that in the south-west of Switzerland and Ticino sales of antibiotics are higher than in the German-speaking part (ACHERMANN ET AL. 2010). However, Italian language and dentists practising in Ticino were not significantly correlated with a more frequent antibiotic prescription.

Dentists who received their diploma during the years 2001 to 2006 prescribed antibiotics significantly more often ($p=0.004$). It could be hypothesized that colleagues lacking surgical expe-

rience, regarding their years in practice use antibiotics more often prophylactically in the belief to reduce complications. In contrast, the group of dentists with diplomas issued from 2007–2012 did not reach significance for antibiotic prescription ($p=0.59$). This might be explained due to the relatively small number of dentists in this group.

In the literature various antibiotics were used in multiple trials focusing on MTM surgery and postoperative complication rates. A lower incidence of surgical site infection and AO was found. Pre- or postoperative administration of antibiotics showed less postoperative complications than placebo groups (LACASA ET AL. 2007, LUACES-REY ET AL. 2010, LOPEZ-CEDRUN ET AL. 2011). In contrast, in other studies there was no benefit using systemic antibiotics (SEKHAR ET AL. 2001, POESCHL ET AL. 2004, SIDDIQI ET AL. 2010). In a recent review, various treatment modalities for the prevention of AO including systemic antibiotics were assessed. The authors concluded that available evidence was inconclusive and more double-blind, randomized, controlled trials with adequate sample sizes are needed (HEDSTRÖM & SJÖGREN 2007).

When using prophylactic antibiotics, possible side effects of antibiotics need to be discussed. Often, postoperative courses of antibiotics are continued for several days causing an increase of side effects (VOGEL ET AL. 2002). Complications such as hypersensitivity, nausea, and unnecessary destruction of host commensals are mentioned in the literature (BARCLAY 1987, BLUM 2002, LACASA ET AL. 2007). But most importantly, the increase in antibiotic resistance is a challenge for the society and therefore antibiotics should be used very prudently (RUDHOLM 2002).

A correct dosing of each specific antibiotic needs to be respected. In our survey, 26% of dentists prescribed ineffective doses of antibiotics. A survey in the UK found poor understanding regarding antibiotic prescriptions issued by general dental practitioners. Forty-four percent of amoxicillin prescriptions were incorrect (PALMER ET AL. 2001). Three daily doses of 750 mg of amoxicillin or 625 mg of amoxicillin with clavulanic acid or 300 mg of clindamycin are recommended in case of dental infections (VOGEL ET AL. 2002). However, in a recent in vitro study dosing of amoxicillin with clavulanic acid of 1000 mg twice daily was effective (ISLA ET AL. 2005). Other antibiotics such as tetracyclin and penicillin V are not recommended (CRUCIANI 1978). Penicillin V was less effective on isolates in dental infections compared to aminopenicillins in combination with β -lactamase inhibitors (VOGEL ET AL. 2002). Spiramycin should be avoided due to a relatively poor resorption rate and efficiency compared to newer macrolides (LO BUE ET AL. 1993). Regarding treatment length a prolonged prophylactic antibiotic medication could be harmful by creating resistant strains of bacteria (LONGMAN & MARTIN 1991).

In our study, alumni of foreign universities prescribed antibiotics more frequently ($p<0.001$). This finding might be explained by the higher consumption of antibiotics in other European countries compared to Switzerland. It can be hypothesized that practitioners who had training in neighbouring countries moving to Switzerland might continue with their habitual treatment rationales. When compared with other European countries, antibiotics are used infrequently in ambulatory care in Switzerland (FILIPPINI ET AL. 2006). It is possible that income, price, demographic factors, including the proportion of foreign residents, the density of medical practices, and cultural as well as educational differences may explain these regional differences (FILIPPINI ET AL. 2006).

Conclusively, our survey showed a large variation of prophylactic use of systemic antibiotics in MTM surgery in Switzerland among dentists. The prevalence of postoperative complications is low if sound surgical protocols are followed. Evidence is still not conclusive whether systemic prophylactic antibiotics are contributing to a reduction of postoperative complications (SEKHAR ET AL. 2001, POESCHL ET AL. 2004, HEDSTRÖM & SJÖGREN 2007). With the exception of patients at risk of endocarditis or patients with bleeding disorders, conditions that delay healing or with a compromised immune system, prophylactic antibiotics should not be prescribed (LAMBRECHT 2004, HAY ET AL. 2005, WILSON ET AL. 2007). In our survey 18.6% of Swiss dentists regularly prescribed prophylactic antibiotics in MTM surgery. This fairly high number raises concerns about the responsible use of antibiotics. In the light of growing evidence that antibiotic overuse is an important risk factor for the emergence of antibiotic resistance a more restrictive use of antibiotics must be advocated. Established surgical protocols in MTM surgery should be followed including appropriate wound management and the use of mouth rinse.

In a second publication the results of our survey among Swiss dentists regarding the kind of wound closure and local wound management in MTM surgery will be reported.

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Résumé

La présente enquête, auprès des dentistes suisses, membres de la SSO, tenait à recueillir des données sur les soins postopératoires et la prescription d'antibiotiques suivant l'extraction prophylactique des troisièmes molaires mandibulaires.

Un questionnaire en allemand, français et italien était envoyé à tous les 3288 membres de la SSO par courrier. Le questionnaire était composé de 13 questions à choix multiple concernant un cas clinique. Une radiographie panoramique montrant une troisième molaire mandibulaire incluse d'une jeune patiente de 17 ans était incluse. Les dentistes devaient répondre à des questions concernant l'expérience chirurgicale, la prescription et le dosage des antibiotiques. En plus, on posait des questions concernant la fermeture de la plaie et l'usage des solutions de rinçage. Finalement, les dentistes ont donné des informations personnelles comme âge, date du diplôme et université.

Le taux de réponse correspondait à 1795 (55%). Ce nombre se composait de 1380 questionnaires remplis de la Suisse allemande, de 315 de la Suisse romande et de 100 de la Suisse italienne. Le taux des dentistes participant dans les trois zones linguistiques était de 55%, 51% et 71%.

Des dentistes SSO participants, 85% possèdent un diplôme suisse. De tous les dentistes, 49,9% faisaient au moins une extraction chirurgicale prophylactique par semaine dans leur cabinet. 7% des dentistes exerçaient plus de 20 interventions par semaine, tandis que 12,7% réfèrent les patients aux spécialistes. Du total des dentistes, 81,4% n'utilisaient jamais d'antibiotiques, tandis que 18,6% les prescrivaient avec les extractions. On pouvait montrer qu'il y avait des différences significatives en vue des zones linguistiques, des universités, des pays d'origine et de la date du diplôme. En Suisse alle-

mande, 12,5% des dentistes donnaient des antibiotiques contre 20,2% en Suisse italienne et 48% en Suisse romande.

Dans trois cantons représentatifs des zones linguistiques, les différences des taux des prescriptions étaient encore plus évidentes. Dans le canton de Zurich, des antibiotiques étaient prescrits par 8,7% des dentistes, tandis que dans les cantons du Tessin et Genève les pourcentages étaient respectivement de 19,8% et de 69,1%. Les praticiens qui avaient étudié à l'Université de Genève ou à l'étranger ou jeunes dentistes diplômés de 2001 à 2006 prescrivaient des antibiotiques plus souvent.

Les antibiotiques étaient prescrits de façon préopératoire dans 7,4%. Une prescription pré- et postopératoire avait été favorisée par 36,8% et l'administration postopératoire par 54,4% des dentistes. Au niveau du dosage, le taux des réponses était de 5,7% (1-3 jours), 31% (3-7 jours) et 2,1% (>7 jours).

Concernant le principe actif, l'amoxicilline était favorisée (45,7%) suivie par l'amoxicilline avec acide clavulanique (33,7%) et clindamycine (14,5%). D'autres antibiotiques étaient seulement prescrits par 6,1%. A nouveau, les différences étaient bien évidentes dans les zones linguistiques. L'amoxicilline avec acide clavulanique était le principe actif le plus souvent prescrit en Suisse allemande (36,4%) et au Tessin (64,7%). En Suisse romande, l'amoxicilline était favorisée (65,8%). La dose d'amoxicilline la plus souvent prescrite était de 750 mg (52%), puis celle de 1000 mg (24%). Les doses de 500 mg et 375 mg étaient prescrites par 19% des dentistes.

L'amoxicilline avec acide clavulanique 625 mg était la dose favorisée (48%), suivie par celle de 1000 mg (42%). La clindamycine est vendue en dose de 300 mg seulement en Suisse. 47% des dentistes donnaient des antibiotiques trois fois, tandis que 28% les donnaient deux fois par jour seulement.

En conclusion, les dentistes suisses utilisent des antibiotiques pour les extractions prophylactiques des troisièmes molaires incluses de façon régulière. Mais la fréquence de prescription dépend fortement de la zone linguistique et du profil du dentiste. Une haute fréquence de prescription était relevée en Suisse romande et dans le canton de Genève. Ceci est préoccupant en vue de l'augmentation de la résistance des micro-organismes aux antibiotiques et l'indication controversée des antibiotiques prophylactiques pour les extractions des dents de sagesse prophylactiques.

Zusammenfassung

Im Rahmen einer Befragung wurden alle Schweizer Zahnärzte der SSO betreffend den Gebrauch von Antibiotika und das Wundmanagement bei der prophylaktischen Entfernung unterer Weisheitszähne angeschrieben. Ein Fragebogen wurde im Januar 2012 in Deutsch, Französisch oder Italienisch an insgesamt 3288 Zahnärzte per Post versendet. Der Fragebogen beinhaltete 13 Fragen zu einem Patientenfall. Es handelte sich um einen unteren, retinierten Weisheitszahn einer 17-jährigen, gesunden Patientin. Multiple-Choice-Fragen betreffend die Operationserfahrung bei Weisheitszahnentfernungen und die Abgabe von Antibiotika, insbesondere Wirkstoff und Dosierung sollten beantwortet werden. Auch wurde nach dem Wundmanagement gefragt, wie z. B. Drainage oder Mundspülungen. Persönliche Angaben wie Alter, Jahr des Staatsexamens sowie Universität wurden ebenfalls eruiert.

Der Rücklauf nach drei Monaten betrug schweizweit 1795 Fragebögen (55%), davon 1380 aus der deutschsprachigen, 315 aus der französischsprachigen und 100 aus der italienischsprachigen Schweiz. Dies entsprach einer Teilnahme in den drei Landes-

teilen von 55%, 51% sowie 71%. 85% aller SSO-Zahnärzte schlossen ihr Studium an einer Schweizer Universität ab. Insgesamt führten 49,9% der Zahnärzte monatlich mindestens eine operative, prophylaktische Weisheitszahnentfernung durch. 7% der Zahnärzte extrahierten mehr als 20 Weisheitszähne pro Monat, hingegen überwiesen 12,7% der teilnehmenden Zahnärzte die Patienten immer an Spezialisten.

Antibiotika wurden von 81,4% der Zahnärzte nie eingesetzt. Hingegen wurden Antibiotika von 18,6% routinemässig verordnet. Es zeigte sich, dass signifikante Unterschiede im Hinblick auf die Sprachregionen, die Universität, das Herkunftsland sowie das Abschlussjahr bestanden. In der deutschsprachigen Region verordneten nur 12,5% Antibiotika, in der italienischsprachigen Region 20,2% und in der französischsprachigen Region 48% der Zahnärzte.

In drei Kantonen, welche für die Sprachregionen repräsentativ sind, wurden sogar noch grössere Unterschiede gefunden. Im Kanton Zürich wurden Antibiotika von 8,7%, im Tessin von 19,8% und in Genf von 69,1% der Zahnärzte routinemässig verordnet. Zahnärzte, welche ihr Diplom an der Universität Genf oder im Ausland erhielten, verordneten vermehrt Antibiotika, wie auch Kollegen, welche von 2001–2006 diplomiert wurden. Die verordneten Antibiotika wurden von 7,4% präoperativ, von 36,8% prä- und postoperativ und von 54,4% der Zahnärzte postoperativ verordnet. Die Antibiotika wurden von 5,7% der SSO-Mitglieder während 1–3 Tagen, von 31% während 3–7 Tagen und von 2,1% für mehr als 7 Tage verordnet.

Bezüglich des Wirkstoffs wurde Amoxicillin am häufigsten angegeben (45,7%). Am zweithäufigsten wurde Amoxicillin mit Klavulansäure (33,7%), und am dritthäufigsten wurde Clin-

damycin (14,5%) verordnet. Weitere Antibiotika wurden von nur 6,1% der Zahnärzte verwendet. Wiederum zeigten sich Unterschiede in den Sprachregionen, wobei Amoxicillin mit Klavulansäure in der deutschsprachigen Region (36,4%) und im Tessin (64,7%) am häufigsten verordnet wurde. In der französischsprachigen Region hingegen war Amoxicillin der häufigste Wirkstoff (65,8%).

Die Dosis war bei Amoxicillin in absteigender Reihenfolge der Häufigkeit 750 mg (52%) und 1000 mg (24%). 500 mg und 375 mg wurden von insgesamt 19% der Zahnärzte verordnet. Eine Dosis von 625 mg Amoxicillin mit Klavulansäure wurde bevorzugt (48%). 1000 mg wurden von 42% der SSO-Mitglieder verordnet. Clindamycin wird in der Schweiz nur mit einer Dosierung von 300 mg vertrieben, und so waren hier keine weiteren Daten zu erheben. Der Prozentsatz der teilnehmenden Zahnärzte, welche die Antibiotika dreimal täglich verordneten, betrug 47%, hingegen wurde die Einnahme von nur zwei Tabletten täglich von nur 28% favorisiert.

Zusammenfassend zeigte sich, dass in der Schweiz routinemässig Antibiotika zur Infektionsprophylaxe abgegeben werden bei der operativen Entfernung unterer Weisheitszähne. Dies ist jedoch stark von der jeweiligen Sprachregion wie auch vom Behandlerprofil abhängig, wobei im Kanton Genf als auch in der gesamten französischsprachigen Schweiz ein sehr hoher Antibiotikagebrauch zu erheben war. Dies ist im Hinblick auf die steigende Zahl antibiotikaresistenter Bakterienstämme besorgniserregend, da die Evidenzlage der prophylaktischen Antibiotikaabgabe bei der operativen Weisheitszahnentfernung nicht eindeutig ist.

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