To pen or to probe

Prescribing versus treating, how to decide

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Leanne M Sykes, William G Evans, Glynn Buchanan, Nichola Warren, Nelson Fernandes

"*The pen is mightier than the sword*" is an adage coined by Edward Bulwer- Lytton in 1839, indicating that communication (particularly written language), is a more effective tool than direct violence.[1] He was making a statement to members of his own society suggesting that the administrative powers or advocacy of an independent press could be a more effective communication tool than direct violence. This could be applied to Dentistry in 2017, where the pen refers to the writing of prescriptions and the violent sword is replaced by a (hopefully more gentle), probing clinician – both literally and figuratively. If that is so, - then one needs to investigate the ethics of the current trend and *laissez faire* attitude with which many dentists write out prescriptions.

INTRODUCTION

The question of wellness was explored in Part 15 of this series, based on the definition of health proposed by the World Health Organization (WHO). However that description is now over 70 years old and does not fully address the more holistic approach to oral health, first proposed by Dolan in 1993, which defines oral health as "having a comfortable and functional dentition that allows individuals to continue their social life".[2] Others have added that "It is the ability to chew and eat the full range of foods native to the diet, to speak clearly, to have a socially acceptable smile and dento-facial profile, to have a fresh breath and to be comfortable and free from pain".[3] In 2016 the FDI proposed that "Oral health is multi-faceted and includes the ability to speak, smile, smell, taste, touch, chew, swallow and convey a range of emotions through facial expressions with confidence and without pain or discomfort and disease of the craniofacial complex". For most clinicians and patients, this may have seemed like an unrealistic and unattainable ideal. It was thus later modified by adding the proviso that: "It (sic. Oral health) is influenced by the individual's changing experiences, perceptions, expectations and ability to adapt to circumstances".[4]

In the endeavour to secure oral health for a patient the dental practitioner may invoke any of the many ways of treating pain and disease, but a frequent choice is with medication – in particular antibiotics and analgesics. This may be prior to, in place of, in conjunction with, or after some form of physical intervention. A poignant question is: which is the best treatment for each situation, i.e. what to do and when?

WHY DO DENTISTS PRESCRIBE?

In 2001, Daily and Martin conducted research on antibiotic prescribing habits in an emergency dental clinic in the United Kingdom. They found that 74% of patients diagnosed with pulpitis were issued with a prescription for antibiotics without any form of active treatment being carried out.[5] Similarly Tulip and Palmer (2008) noted that more than 50 % of patients who presented to an emergency clinic with dental conditions were treated with the provision of antibiotics alone with no follow-up management to address the aetiology of their pain.[6] In the UK, dentists prescribe 10% of all antibiotics dispensed from community pharmacies,[7] and often do so in contradiction to clear clinical guidelines. In Canada, dental prescribing increased by 62.2% from 1996 to 2013.[8]

It is disturbing that a similar cross sectional survey conducted in the United Kingdom found the prevalence of antibiotic prescribing to remain alarmingly high despite the universal concern about the increase in antibiotic resistant organisms.[9]

In over 70% of cases, clinicians offered no operative therapy in conjunction with the antibiotic prescription. Of greater concern is the report that a further 12,6% of dentists in this study, and almost 65% in an Indian survey, prescribed antibiotics for the treatment of diagnosed irreversible pulpitis where the patients had no systemic symptoms[9,10] and where evidence suggests that preoperative antibiotic therapy does little to reduce the pain in these situations.[11]

Investigations into prescribing habits have revealed that dentists prescribe antibiotics more often when under time pressure, where they have difficulty in making a definitive diagnosis, or if treatment needs to be delayed.[12] Other reasons for high prescription rates could be personal, such as to avoid working late or going out to see an after-hours emergency patient. Practitioners often consider these times inconvenient because the emergency procedures may be complex, and there is the risk that the patient may not pay for services rendered. Providing a prescription may be a way to "get rid" of the patient quickly and easily. More alarming instances are where the dental practitioner succumbs to patient demands or expectations for medication; or where patients report to be in pain but state that they are unable to get to the consulting rooms. Prescriptions may be made out for friends, colleagues or family members based on verbal conversations without the practitioner ever seeing the person. This is tantamount to relying on an often-untrained third party to self- diagnose and dictate treatment.

Ethical considerations in deciding whether to treat family and friends are complicated. On the one hand, the patient's right to choose the dental practitioner of his or her choice must be considered, respecting their right to autonomy. However, on the other hand the question of the potential impairment of a clinician's objectivity in making sound clinical treatment decisions must be considered.[13] Kling (2015) advised that one should: "refrain from treating family and friends, except in emergency situations and where no other doctors are immediately available".[14]

ETHICAL ISSUES AND IMPLICATIONS

Telephonic consultations do not allow for any form of physical examination of the patient, or the use of diagnostic aids. The diagnosis is based purely on the patient's description and interpreta-

tion of their own symptoms. This is subjective, depends on their degree of pain, often over-exaggerated or distorted, and may be blatantly dishonest if the patient's main motivation is to obtain medicines. Who will be accountable for an incorrect diagnosis, adverse side effect of medication or worse, complications resulting from the lack of intervention?

The dental community has been implicated in the over-prescription of antibiotics, a practice which has contributed to the universal problem of antimicrobial resistance (AMR).[5-7,15] There are two ways in which AMR occurs. Firstly, microorganisms can adapt and change after being exposed to antimicrobial drugs (such as antibiotics, antifungals, antivirals, antimalarials, and anthelmintics). Secondly, bacteria of different taxa can work mutualistically to form a community that can be up to one thousand times more tolerant to environmental stress, including antibiotics, than individual colonies or cells to antimicrobials.[16]

AMR occurs naturally over time through genetic changes; however, the misuse and overuse of antimicrobials accelerates this process. "These organisms are colloquially referred to as "superbugs", due to their resistance to the medicines routinely used to treat them, and result in persistent infections, and increased risk of spread to others. This is a global public health issue that threatens future effective prevention and treatment of an ever-increasing range of infections. The implications are vast. It may compromise the success of major surgery and cancer chemotherapy, jeopardise organ transplantation and diabetes management, increase the cost of health care for patients by prolonging the duration of illness and hospital time, and may necessitate additional tests, use of more expensive drugs and even intensive care. In addition, patients infected by drug-resistant bacteria tend to have worse clinical outcomes, consume more health-care resources and have a higher risk of death from their infections." [17]

Other examples of antimicrobial misuse are when they are prescribed for people with viral infections like colds and flu, and when given as growth promoters in animals and fish which later results in resistant organisms being found in people, animals, food, and the environment. Two main global concerns are the increase in multi-drug resistant TB. The WHO estimates that, in 2014, there were about 480 000 new cases of multidrug-resistant tuberculosis (MDR-TB), yet only about a quarter of these (123 000) were detected, reported and treated. This form of TB requires much longer treatment, which is often less effective than in non-resistant TB. The second is the widespread resistance to first-line drugs used to treat infections caused by *Staphylococcus aureus*, a common cause of severe infections in health facilities and the community. People with methicillin-resistant *Staphylococcus aureus* (MRSA) are estimated to be 64% more likely to die than people with a non-resistant form of the infection.[17] In addition, the fact that the antibiotics of choice in dentistry are amoxicillin in combination with metronidazole, and erythromycin in cases of penicillin allergy, could have contributed to the widespread resistance to these drugs.[10,15]

Local measures should always be the first line of treatment regarding any dental infection. Some clinical situations which require antibiotic cover include oral infections presenting with systemic spread such as lymphadenopathy and trismus, systemically elevated body temperature indicating pyrexia, persistent chronic sinusitis with purulent discharge, and facial cellulitis, which can have fatal consequences if left untreated.[18,19]

Localized dental infections requiring systemic antibiotic administration, often in conjunction with localized treatment, include periodontal abscesses, necrotizing ulcerative gingivitis (NUG), and pericoronitis.[18,20]

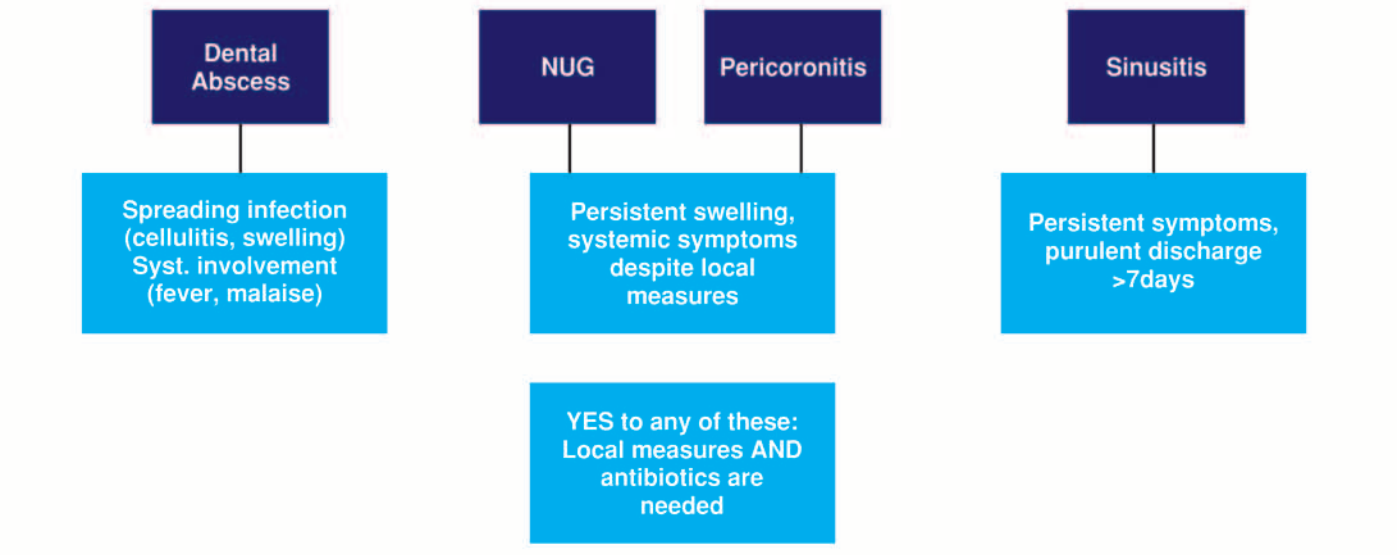
A useful table, adapted from "Drug prescribing for Dentistry: Dental clinical guidance", is included below:

Prophylactic antibiotic coverage for the prevention of infective endocarditis (IE) is warranted in particular circumstances. This is true for patients who are at a high risk of developing IE, including: patients with a previous history of IE, patients with a prosthetic heart valve, those having undergone cardiac valve repair, and those with cyanotic congenital heart disease.[19]

Penicillin still remains the drug of choice for treating infections of dental origin. Clindamycin has been shown to be effective in patients who are allergic to penicillin, whilst metronidazole is most effective against anaerobic infections.[18]

If antibiotic treatment is necessary, the recommended dosages are as follows: 1g amoxicillin/clavulanic acid bd for 3-5 days, or 150mg clindamycin qid for 5 days if allergic to penicillin for dental abscesses; 200mg metronidazole tds for 3 days for NUG/peri-

Table 1



coronitis; and 500mg amoxicillin tds for 7 days, or 100mg doxycycline bd for 8 days for sinusitis.[18,20]

CONCLUSION

The inappropriate prescription of medication, in particular antibiotics by dental professionals, may be contributing to the rapidly increasing universal problem of antibiotic resistance. In addition, the unnecessary use of medication is costly, potentially harmful and may even prolong the time of pain and infection. At worst, prescribing rather than treating may merely mask the problem, and could necessitate more extensive interventions at a later date. Alerting and re-educating practicing clinicians, as well as targeting undergraduate dental students and therapists who have prescribing privileges, is an important future step in minimising antibiotic consumption.[21] Perhaps broader training at dental undergraduate level should be instituted, specifically with regards to the prescribing of medications.[22]

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