

Perception of Final Year Dental Students on Pattern of Medication for Pulpitis

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Abstract

Background: Numerous studies have examined the pattern of various analgesics and antibiotics prescribed by primary dental health care practitioners to manage irreversible pulpitis.

Aim: To determine the pattern of medicines for irreversible pulpitis in undergraduate dental students.

Methodology: A cross sectional survey of open ended questionnaire based on dental scenarios of irreversible pulpitis for child, pregnant woman and apical periodontitis for man was carried out at department of operative dentistry. The questionnaire sought mock medications by the 5th year undergraduate dental students. Responses (n=111) were collected and analysed by frequency for drug prescribed. Data included the name of medicines, dose and presentation of the drugs.

Results: Of the 57 distributed questionnaires, 37 (63%) respondents returned completed forms. A total of 24 (64.8%) of the respondents were female. Majority of mock prescriptions (97.4%) had a combination of antibiotics and analgesics to male patients having apical periodontitis. Almost 25% suggested antibiotics to the pregnant women of 1st trimester, while 81.9% suggested antibiotic and analgesic in tablet form to a child patient. In analgesic and antibiotics groups, acetaminophen (75.5%) and amoxicillin (56.7%) were highest respectively. Abbreviated drug name (11.7% analgesic and 0.9% antibiotic), and incorrect strengths (7.3% antibiotics and 14 % analgesics) were found.

Conclusion: Amoxicillin and acetaminophen were primary medication for irreversible pulpitis. More clinical training on medication is suggested.

Keywords: Analgesics; Antibiotics; Dental students; Irreversible pulpitis; Medication

Introduction

Dental medications, as complementary component of treatment of various dental procedures to get relief of dental pain, comprise of analgesics and antibiotics [1,2]. Prescribing medication varies from 74 - 97 % in dental practice during a week [3]. In the UK, 40% dentists prescribe antibiotics in a week [4]. More than 50% dental prescriptions have antibiotic, analgesic and mouthwash [5]. In Brazil, the most commonly prescribed medications by dental practitioners were amoxicillin (26%) and diclofenac (35 %) [6]. Dar-Odeh et al. [7] found amoxicillin (60%) and metronidazole (39.4%) as higher prescribed antibiotics by dentists in Jordan. Chate et al. [8] observed the pattern of prescribing antibiotics and found 21.4 % prescriptions with error associated with abbreviation of drug name, dose and strength.

Most studies on medication pattern involve the qualified dental graduates. Limited data is available on undergraduate dental students in this aspect. Dental training aims to acquire prescribing skill by dental students. Thus clinical instructors of dental schools take technical skills as the primary component of a 'good' dentist [9]. Undergraduate dental students, though, are not allowed to prescribe medicines; they are trained to prescribe medicines under supervision of clinical teachers.

This study aimed to find the pattern of medicines suggested by final year undergraduate students for irreversible pulpitis and apical periodontitis. An ethical approval was obtained from the Research Committee of Faculty of Medicine, Universiti Kebangsaan Malaysia.

Methodology

A cross sectional survey having open ended questionnaires was used. The questionnaire comprised of three scenarios based on dental

problems of a child, pregnant woman and man. The provided mock scenarios had diagnosis such as irreversible pulpitis for child and pregnant woman and apical periodontitis for man. Thus each surveyor prescribed mock medications for three multiple patients. Thirty seven out of 57 students completed the survey of mock prescriptions. Responses (n=111) were analysed by frequency and percentage. Data included the name and type of medicines, dose and presentation of the drugs.

Results

Of the distributed 57 questionnaires, 37 (63%) students returned completed mock prescriptions. A total of 24 (64.8 %) of the respondents were female. The acetaminophen (75.5%) and amoxicillin (56.7%) were the primary medications (Table 1).

Majority of students (97.4%) prescribed a combination of antibiotics and analgesics to a man with apical periodontitis. Almost 25% students suggested antibiotics and analgesic to the pregnant woman of 1st trimester with irreversible pulpitis. A large number

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Analgesic (n=111)				Antibiotic (n= 52)			
Medicine	No. students	Frequency	Percentage	Medicine	No. Students	Frequency	Percentage
Acetaminophen	28	84	75.7	Amoxicillin	21	30	56.7
Mefnemic acid	08	24	21.6	Metronidazole	15	21	40.4
Others	01	3	2.7	Others	01	1	2.7
Total	37	111	100	Total	37	52	100

Table 1: Mock Medicines by Dental Students for Irreversible Pulpitis.

Type of patient	Medicine group	Students N=37	
		Frequency	%
Child	Analgesic	30	81.1
	Antibiotic & Analgesic	7	18.9
Pregnant women	Analgesic	28	75.7
	Antibiotic	1	2.7
	Antibiotic & Analgesic	8	21.6
Adult men	Analgesic	-	-
	Antibiotic	1	2.7
	Antibiotic & Analgesic	36	97.3

Table 2: Pattern of mock medicines by dental students for irreversible pulpitis.

(75.5%) of mock medications had analgesic primarily acetaminophen while one had sole antibiotic (2.7%) for the 1st trimester pregnant woman. To an eight year child with irreversible pulpitis, more than two third (81.9%) suggested antibiotic and analgesic in tablet form (Table 2). Abbreviated drug name (11.7% analgesic and 0.9% antibiotic), the incorrect strengths (7.3% antibiotics and 14 % analgesics) and incorrect dose up to 20 percent were found (Table 3).

In summary, acetaminophen (75.7 %), amoxicillin (56.7 %) and metronidazole (40.4%) were the common suggested medicines for irreversible and apical periodontitis. However some prescribing errors were found in mock prescriptions of dental students.

Discussion

In dental practice, along procedures, antibiotics and analgesics are prescribed. The most used antibiotics like amoxicillin, penicillin, metronidazole and amoxicillin and clavunate are prescribed by dentists [10-16]. Though performing pelpectomy is the best management of irreversible pulpitis but prescribing medication is still part of practical dental practice. In US, more than 60% endodontists prescribe penicillin VK as the first choice of antibiotic followed by 57% clindamycin and erythromycin (26.65%) [17]. This study primarily focused on the pattern

of medicines, suggested by undergraduate dental students for pulpitis either irreversible or periapical. Acetaminophen was the most highly (76.7%) prescribed medicines for irreversible and periapical pulpitis (Table 1). Donaldson & Goodchild [18] found that acetaminophen and NSAIDs were the most appropriate choices for the treatment of acute dental pain such as Pulpitis.

Many studies have shown that amoxicillin is the first choice of antibiotic and commonly prescribed (40- 60 percents) for irreversible pulpitis [19-22]. From Table 1, it is evident that the most commonly prescribed antibiotic was amoxicillin (57.7%) for irreversible pulpitis as well as apical periodontitis. The pattern of suggesting medicines by undergraduate dental students was similar to graduate dentists. In this study, students suggested, though limited, antibiotics, amoxicillin 57.7 percent and metronidazole 40.4 percent. All other antibiotics were 1.9 percent. The reason could be the less clinical experience.

The administration of penicillin requires analgesics to be added in the regime to reduce dental pain significantly [23]. Majority of dental students suggested amoxicillin in combination of acetaminophen (Table 2). This shows a similar pattern of dental medication of students and it is hoped that dental students would follow the same pattern in their real practice upon graduation.

Many studies indicate acetaminophen and ibuprofen are effective therapy for dental pain taken after dental procedure especially extraction or even before procedure [24,25]. In this study, students suggested almost three quarters (75-80 percent) analgesic mainly acetaminophen especially for child and pregnant woman. This shows a similar pattern on analgesics; however, students prescribed a limited analgesics and antibiotics variety. It could be due to less ward training and less interaction with patients.

Children's dosage is based on a single dose of 10 mg acetaminophen per kilogram bodyweight which can be repeated 4-6 hourly per 24 hours. Acetaminophen in syrup form or oral suspension is recommended for a child up to 12 year of age [25]. The results show

Drug related Errors	Analgesic (n =111)	Percent	Antibiotic (n = 52)	Percent
Incorrect dose	7	6.3	8	15.3
Incorrect strength	15	13.5	4	7.6
Abbreviated name	13	11.7	1	1.9
Drug form (syrup) child*	7	18.9	-	-
Drug form (tablet)child*	30	81.9	-	-

Child* (n) =37

Table 3: Commission Errors of Mock Prescription of Dental Students.

almost 81.9% mentioned tablet form medicine for 8 year child (Table 2). From guideline of pharmacology, a child of eight year old should be given medicine in syrup form [26]. Syrup (liquid) form is easy to take as compared to tablet form. However, in clinical practice, patient (child)' consent is taken before prescribing any form of medicine. Due to absence of real child patient, students might not have taken this aspect. They concentrated on choice of drug rather than form of drug.

Table 2 illustrates the drug description for pregnant woman of 1st trimester. Almost one fifth students (21.6 percent) suggested antibiotic and analgesics. Medication of amoxicillin is in safe zone while metronidazole is contraindicated in 1st trimester [27]. Almost 40 percent responses contained antibiotics for pregnant woman. In practice, doctors prefer to avoid prescribing antibiotics in 1st trimester of pregnancy. The students were under clinical training and they followed the guidelines of books. This could be the reason of suggesting antibiotics in 1st trimester of pregnancy. The facts indicated of more clinical training on medication process of patient management. Bottom of Form

Conclusion

Dental students in mock prescriptions prescribed acetaminophen and amoxicillin as the analgesic and antibiotic agents for irreversible pulpitis. However, for multiple choices and selection of drugs, less variety of multiple medications was found which suggested more clinical training of dental students.

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