

A STUDY COMPARING DRUG CHOICES AND PRESCRIPTION PATTERNS AMONGST FINAL YEAR STUDENTS AND HOUSE OFFICERS IN KARACHI

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ABSTRACT

A Cross Sectional survey in May 2016, was used to compare drug choices and prescribing patterns of two supervised levels selected from four dental teaching institutes in Karachi. A pre-tested questionnaire with six close-ended questions was distributed to 190 Final Year Students and House Officers. The response rate was 82%. Responses were stored in excel sheets. Using a random sampling technique, responses of 138 Final Year Students and House Officers were taken and analyzed by SPSS software.

Results showed similarities amongst the Final Year Students and House officers. Most Final Year Students (59.4%) and House Officers (58%) prescribed drugs for pain. Both Students (71%) and House Officers (69.6%) advised measures and gave supportive medication.

Evident differences were observed in the choice of Non-Steroidal Anti-inflammatory Drugs (NSAIDs) and Antibiotics. Paracetamol was the choice of NSAID by 66.7% Final Year Students and 30.4% House Officers. Noticeably, 17.4% of Final Year Students chose Ibuprofen as compared to 39.1% of House Officers.

The data showed a contrast in choice of antibiotics when 11.6% of Final Year students and 1.4% of House Officers gave Metronidazole. Amoxicillin was prescribed by 37.7% students and 21.7% House Officers. Antibiotics were given in a combination by 44.9% Students, compared to 66% House Officers.

When choosing drugs, Final Year Students (53.6%) and House Officers (56.5%), both depended upon information from their Professors. An indication for improved training was revealed, when a considerable proportion of Final Year Students (26.6%) said, that their choice was influenced by Medical Representatives and 7.2% of them, depended on suggestions from friends or colleagues.

Key Words: Drug choices, Dentists, Students, Karachi

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INTRODUCTION

An undergraduate course of Dentistry in Pakistan is covered in four years. It is followed by a training period of a year which is known as House Job. After completion of House job, Dentists are licensed to work independently. Increasing evidence has been found, that dentists in most countries have inadequate pharmacological knowledge and that they make errors in drug prescription.¹⁻³ Drugs used in dentistry include

procedural drugs and prescription drugs. Procedural drugs include local anesthetics. Common prescription drugs include non-steroidal anti-inflammatory drugs and antibiotics.²⁻⁶ The success of a treatment is dependent on proper choice and prescription patterns of these drugs.

This indicates that the training of dentists needs to improve during their undergraduate years or during house job. The Medical Curriculum should be formulated in such a way that it is well rounded to equip students and provide them adequate skills to practice in a clinical setting.⁷ Students start prescribing drugs as soon as they begin their rotations in Clinical Departments and also during House Job. Poor prescribing is widespread, including overuse of medicines or under-use of effective ones⁸. The knowledge of dentists and dental students regarding the prescription of drugs has been assessed to be inadequate in various stud-

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ies.⁹⁻¹¹ Medical literature shows evidence of increasing antimicrobial resistance.¹² However, Studies show that drugs are prescribed in situations where they are not indicated or needed.^{11,13,14} Erroneous prescribing could be due to a failure in forming a link between theory and practice.⁷

It is the House officers and the Final Year Students that make the future workforce. Therefore, it is necessary that their knowledge should be sufficient. Any deficiency in their final year should be addressed during the course of their house job.¹⁵

The aim of this study is to compare, understand and identify drug prescribing patterns of two supervised levels in Karachi. For this reason the data sample calculated using Raosoft online calculator, has been acquired from four public and private dental Institutions of the city.

MATERIALS AND METHODS

The data was collected during May 2016, over a period of a month. The sample was randomly selected from four public and private dental institutions, in different areas of Karachi. Final year students and House Officers from, Altamash Institute of Dental Medicine, Jinnah Medical and Dental College, Jinnah Postgraduate Medical Centre and Ziauddin College of Dentistry were included in the study. Third year students were excluded from the study due to their limited patient interactions.

A questionnaire with six close-ended questions was pilot tested amongst 5 respondents. It was distributed among 190, Final Year Students and House officers. Out of these 157 responded. The results were filled in excel sheets For the purpose of comparison responses of 138 including 69 Final Year Students and 69 House Officers were taken through a random sampling technique using Microsoft Excel.

The sample size was calculated using Raosoft® Online Software. The confidence interval was 95% and the margin of error at 8.34% (0.98/sqrt138)

The stored data in excel sheets was analyzed through SPSS software (version 24). Results were expressed as frequency and percentages.

RESULTS

According to 32 (46.4%) Final Year Students and 45 (65.2%) House officers, Non- Steroidal Anti Inflammatory Drugs are the most common drugs prescribed in their clinical practice. The most common reason to prescribe any drug was pain according to 41 (59.4%) Final Year Students and 40 (58%) House Officers. From the Final year students, 46 (66.7%) chose Paracetamol as the most common NSAID prescribed in clinical practice. Whereas, 27 (39.1%) House Officers prescribed Ibuprofen for pain. When asked about the antibiotic of

choice, 31 (44.9%) Final Year Students and 48 (69.6%) House Officers most commonly prescribed a combination of Amoxicillin and Metronidazole. However, 26 (37.7 %) Final Year Students prescribed Amoxicillin alone. According to 49 (71%) Final Year Students and 48 (69.6%) House Officers gave advice or supporting medication to counter the side effects of Drugs. The choice of drugs of 37 (53.6%) Final year students and 39 (56.5%) House Officers was dependent upon information from their Professors. Whereas, 18 (26.6%) Final Year Students said, that their choice was influenced by medical representatives and 5 (7.2%) of them, made their choices by asking friends or colleagues. Detailed results in Table 1

DISCUSSION

In the past, very few studies comparing Final Year Students versus House Officers have been conducted. This was a multi-center study in Karachi. It recorded choices from four different institutions present in different areas. Dental Students cover a course of pharmacology in Pakistan in their second year of study.¹⁶ They are under direct supervision of their teachers when writing prescriptions in their final year and house job.^{7,17} Yet according to this study half of them make choices depending on other sources. All dental institutions cover the syllabus formulated by the Higher Education Commission and enforced by Pakistan Medical and Dental Council.¹⁸ However, differences in preferences of Final year students and House Officers were observed.

According to the present study the most common drug prescribed in clinical practice by both final year students and House officers were NSAIDS and the most common condition for which they prescribed any drug was pain. This matched the results of previous studies conducted in India by Jain et al.¹⁹ A high proportion of final year students and House officers also prescribed drugs for infection, similar to observations made by Gulzamen Alvarez et al in his study and Asad Mahmood et al in his study in Punjab, Pakistan.^{1,18} Relieving pain is greatly important when treating dental patients, for both the patient and the clinician.²⁰ Pain is a symptom that signals greater underlying problems. Major cause of pain is due to activation of sensory nociceptors around the tooth by release of inflammatory mediators.³

Non-steroidal anti-inflammatory drugs (NSAIDs) are amongst the most widely prescribed analgesics for management of post-operative pain in dental patients.²¹

In this study we analyzed that Final Year Students chose Paracetamol as the most common Pain-killer advised. This is similar to the choice of Final year students participating in the study conducted by Guzmán-Álvarez et al. and the choice of students and interns in studies conducted in Yemen.^{1,22} Most Final Year Students probably chose this because they regard Panadol as the safest medication as compared to other NSAIDS available. In contrast, House Officers in Karachi chose Ibuprofen as the most common NSAID

TABLE 1

Questions	Final year students		House Officers		
	%	Count	%	Count	
Most Common Drug prescribed In practice	Antibiotics	43.5	30	24.6	17
	Mouthwashes	7.2	5	8.7	6
	NSAIDS	46.4	32	65.2	45
	Topical Medications	2.9	2	1.4	1
Most common health condition for pre-scribing any drug	Gingivitis	4.3	3	4.3	3
	Infection	36.2	25	36.2	25
	Other	0	0	1.4	1
	Pain	59.4	41	58.0	40
Most commonly pre-scribed antibiotic in practice	Amoxicillin	37.7	26	21.7	15
	Metronidazole	11.6	8	1.4	1
	Combination of A and B	44.9	31	69.6	48
	Varies according to case	5.8	4	5.8	4
	Other	0	0	1.4	1
Most commonly pre-scribed NSAID in practice	Diclofenac	4.3	3	4.3	3
	Ibuprofen	17.4	12	39.1	27
	Naproxen	11.6	8	26.1	18
	Paracetamol	66.7	46	30.4	21
Choice of Drugs Pre-scribed is based	Classmates or colleagues	7.2	5	0	0
	Information from Professor	53.6	37	56.5	39
	Literature	13.0	9	30.4	21
	Medical representatives	26.1	18	13.0	9
Give advice or supporting drugs	Yes	71.0	49	69.6	48
	No	29.0	20	29	20
	Do not know	0	0	1,4	1

followed by Paracetamol. Paracetamol has analgesic and antipyretic actions but little or no anti-inflammatory properties.²³ The preference of Ibuprofen in this study, over Paracetamol could be due to its potent anti-inflammatory activity. In this study Naproxen was one of the least favoured choice of NSAID, unlike studies conducted amongst dentists in Istanbul.²⁴

Studies conducted in Scotland showed that most general dentists preferred to prescribe Amoxicillin, and a very high percentage of dentists also chose Metronidazole.²⁵ Similar results were found in studies done in Lahore. In this study majority of Final year Students and House Officers prescribed a combination of Metronidazole and Amoxicillin.²⁶

Drugs used in dentistry have side effects. For example, NSAIDs achieve their analgesic effect by inactivation of Cyclooxygenase (COX) enzyme that converts Arachidonic Acid into Prostaglandins and Leukotrienes.²⁷⁻²⁹ These COX inhibitors cause Gastro-Intestinal related side effects in patients. When giving such drugs it is effective to give supporting advice and

medication, to patients, in order to counter such effects. Most Final Year students and House Officers had this habit as observed in this study.

Choices of Drugs, prescribed by House Officers and Final Year Students were dependent upon the Information provided by their Professors. It was encouraging to see a number of House Officers read literature for their choices. Similar results were obtained by the study conducted by Asad Mahmood et al.¹⁸ However, it was alarming too see lots of students getting misguided when making choices. Even though, most were under guidance of their teacher, a number were depending on information from Medical Representatives. As commercialism is a dilemma in this stage it also poses a threat to the wellbeing of the patient. Students were also depending on information from classmates or colleagues making their drug choices even more questionable.

CONCLUSION

The study revealed similar prescription patterns of final year students and house officers. Both prescribed

drugs to relieve pain and gave supporting advice. However, differences in the choices of drugs were observed. The House Officers and final year students depended on different sources of information to make their choices. The approach to depend on medical representatives and colleagues needs to be discouraged at undergraduate level. Dental students and House Officers should be recommended to follow authentic guidelines. It is advised that relevant literature and guidelines be readily available for reference. Adequate training should be offered in institutes, so that the choices made are well sought. Thus, ensuring that the choices are appropriate and according to the needs of the patients.

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Collected Data, Analysed and wrote the article.

Conception, approval of the idea, made questionnaire & Checked the final proof.