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IRRATIONAL ANTIBIOTIC ADMINISTRATION AMONG IRAQI PATIENT ATTENDING DENTAL CLINIC

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ABSTRACT:

In dental practice there are many wrong habits that should be recognized and treated. One of them is the irrational antibiotic (AB) administration by patient. This indeed created an important issue in dental clinics first of all drug resistance and super infection. This was analyzed in our study and then the causes were identified and a plan suggested in recommendation hope that it will minimize the outcomes.

Results: all those patients were finally subjected to be clinically diagnosed and treated this lead to only one fact, these antibiotics are not effective in one way or another since they are not prescribed by dentist

Key words: irrational drug, self-administration, antibiotics in dentistry

INTRODUCTION:

Antibiotics are among the most commonly prescribed drugs on a worldwide basis. Antibiotics account for one of five new and refill prescriptions each year [(1)]. Selection of the most correct and fitting antimicrobial agent requires knowing (1) the organism's identity (2) the organism's susceptibility and sensitivity to a particular antibiotic (3) the site of the infection or desired drug action (4) patient's factors "age, consciousness, past medical history, socioeconomic level… etc(5) the safety of the agent, and (6) the cost of medication [(2)].

Self-medication and the over use of drugs (even expire) are widespread in countries where drugs are sold without prescriptions [(3,4)]. It is now of great importance in both developed and developing countries as well [(5)]. Self-medication is defined as gaining and consuming any type of medications without referring to the physician for diagnosis, prevention or treatment of minor symptoms or conditions [(6)]. Many reasons stand behind this behavior one of them the use of previously prescribed medications for chronic or recurrent illness or symptom [(7)].

In Iraq it is noticeable that antibiotics are widely used by patients without supervision especially for those who attend dental clinics, the aim of this study is to focus on the reasons that drive the Iraqi patient toward this irrational self- medication and the outcomes of it in dental practice. The study was run in private clinic in Baghdad in 11 months period.

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MATERIALS AND METHODS:

This is a convenient study based on 250 patients who attended private clinic in Baghdad, from February 2014 till March 2015 were selected as previously consumed antibiotic with no results before seeking dental care.

Those patients were asked the following (chief compliant that indicated self-antibiotic administration, how often did they repeat the course, who advised them for this administration, type or brands of antibiotics administered and results after antibiotic course), then clinical examination for those patients and dental management or referral to a physician or another dentist was done if necessary. All these data were collected, classified, tabulated and at last analyzed. Patients involved in this study were 138 (55.2%) females, 112 (44.8%) were males with ages ranged from 23-70 yr.s old.

RESULTS:

Patients were classified according to the chief compliant that derived them to consume antibiotics and the results are recorded in table (1), as it is clear pain in a single tooth area is the major cause (36.4%) followed by swellings (26.4%) then generalized pain which was either in one quadrant, full arch or both arches (15.6%). Pain due to previous filling done in other clinic comes in the third level (14.8%) and finally pain due to previous extraction mostly traumatic.

Patients were classified according to antibiotics they consumed before they attended to dental clinic as in table (2) amoxicillin is the highest (78.7%), followed by (14%) then the least is cefodox® (cefpodoxim) (7.6%).

Patients were asked about the source of the prescription or medical advice. Results were tabulated as in table (3): repeating previous prescription is the major cause (32.4%). This ratio followed by pharmacies prescription (27.2%), then self- decision (23.6%), family or relatives and friends or colleagues at work (13.2%) and at last internet (3.6%)

All those patients were seeking dental management because antibiotic were not effective so clinical examination was done for all then dental management was given for all, some of the needed antibiotic coverage after dental management and others did not. Table (4) revealed those details: (37.2%) of those patients were treated by simple fillings. (16.4%) were treated as root canal therapy. Tooth extraction done for (15.2%), replacing missing teeth was done for (8.8%); root planning done for some of cases (8.4%), (3.2%) shifted to an orthodontist . Dry socket cleaning was applied to (5.2%). (2.8%) referred to otolaryngologist, another extraction for remnant of teeth that caused an infection done for (1.6%), night guard appliance designed for one patient, another patient referred to neurologist, a third patient was referred to dermatologist.

DISCUSSION:

To the best of our knowledge it is the first study in Iraq that deals with

irrational use of antibiotics per se in dental practice. Previous studies were done in either general hospitals or pharmacies and not specified to antibiotics, or done as community based study to estimate the level of knowledge of antibiotic resistance or studies handled the most commonly prescribed antibiotics in dental carrier outside Iraq. .

Females were more (138 i.e 55.23%) while males were (112 i.e. 44.8%) but the difference was not high and this indicate that both genders seeks dental care in private clinic but females still more in concern about this issue. Children were not included in this study because they are not consuming the drugs by their will and they are judged by parents so it will be included in other study.

As it is obvious in table (1) pain is the chief compliant that drives the patient to seek for antibiotics whatever the cause, location and the type of pain is. However pain in single tooth area was the highest and the least was pain after previous extraction. No previous study discussed the indication of self-administration of antibiotics in dental practice.

In table (2) antibiotics that were irrationally used were analyzed and classified. It is not surprising that amoxicillin was the highest in ratio and this agreed with a study done based on community based questionnaire in Kufa [8].

In table (3) sources of prescription was recorded, it was clear that repeating previous dentists' prescription were highest in ratio. No other study handled this issue among patients in dental clinic but this matched the results of Ali et al 2014 [5] who also discussed the same results concerning community based study in Baghdad and found that previous prescription were the main cause of irrational drug administration.

All those 250 attended private dental clinic because all of them failed to be treated by self- administration of antibiotics whatever the drug type was and whoever the prescriber was. So all of them subjected to diagnosis and treatment with follow-up and suitable antibiotic was given if necessary. As seen in table (4) patients were treated by simple fillings, no antibiotic was given. Patients treated as root canal therapy because acute pulpitis turned into chronic with time and given levofloxacin between visits because it is effective in treating gram negative bacilli which are the main cause in oral infections [9]. Tooth extraction done for cases that couldn't be treated in other ways and given lincomycin injections, replacing missing teeth was done to cover the exposed mucosa of edentulous areas during mastication and only given mouth washes; root planning done for those who complains from pain in full quadrant or full arch and given levofloxacin or Rodogyl® (spiramycin and metronidazole) and other were complained from pain due to defect in occlusion or teeth crowding so those were shifted to an orthodontist to fix the problem. Dry socket cleaning was

applied and then given levofloxacin or lincomycin according to the intensity of infection.

Pain or infections due to origins other than dental referred to otolaryngologist, some of those who complained from pain after previous extraction were found to need another extraction for remnant of teeth that caused an infection, night guard appliance designed for one patient who diagnosed to have bruxism at night, another patient referred to neurologist and diagnosed to have trigeminal neuralgia, also a third patient was diagnosed to have Bechet disease [10].

CONCLUSION:

Irrational use of antibiotics has its causes that should be dealt with seriously. This behavior has its negative impact on the patients on the short and long term. In Iraq this problem is widely distributed because of the absence of censorship on drugs trading; numerous pharmaceutical companies entered the Iraqi market without limitation and the evidence on this is the large numbers of representatives that visits the clinics, pharmacies in a daily matter and the proposal that are given just to sell as much as possible of these drugs in which antibiotics and analgesics represent a large scale, this would certainly drive the pharmacies to sell brands of antibiotics without prescription and this is a mistake should be treated by legislations.

Other cause is that dentist still sticking to one or two types of antibiotics in which many studies proved that amoxicillin is the widest in prescribing [11]. The dentists should know the scientific basis for the prescription [12] since antibiotics should be used only as a helper to dental treatment and never alone as the first line of management [13]. Another cause is the use of the same prescription once again and this also should be fixed by special legislations.

Effects are reflected totally on the patient. First of all resistant to antibiotics which is an important issue and one of the causes of resistance is the repetitive and over administration, which lead to the formation on new plasmids in bacteria result in its resistance [14] and this is why the patients found no effects and they either visited dental clinics or re-use antibiotics again, in both cases the symptoms are getting worse. Besides the most important problems in penicillins is allergy. Allergic reactions ranged between urticaria to anaphylactic shock [15] so the patient will be at risk if he consumed the antibiotic without supervision. Other side effects of overuse of antibiotics in dental practice are opportunistic yeast infections [16], antibiotic associated diarrhea [17, 18], affecting intestinal normal flora [19], In addition to above, the patient is simply losing money and getting his case worse while his dental issue can be fixed in dental clinic simply from the beginning.

Recommendations:

1. Activities of pharmaceutical companies should be monitored by firm legislations

because drug markets must be subjected to scientific rules.

2. The best way to prevent re- filling an old prescription is to follow the program of bar code which is widely distributed in developed countries.

3. Pharmacists should not prescribe drug by their own nor give drugs as patents' will. This is also should be ruled by legislation from ministry of health.

4. Mass media, TV, should be directed to advice and clarify how it is dangerous to use the drugs irrationally without prescription.

5. Regular update should be done annually for dentist about antibiotics how to prescribe and when.

REFERENCES:

1. Carruthers, S. George; Hoffman, Brian B.; Melmon, Kenneth L.; Nierenberg, David W. : Melmon and Morrelli's Clinical Pharmacology, 4th Edition Copyright ©2000 McGraw-Hill. P 873
2. Michelle A. Clark, Richard Finkel, Jose A. Rey, Pharm.D., Karen Whalen; Lippincott's Illustrated review: pharmacology Williams & Wilkins 2012 pp 370.
3. Stratchounski LS, Andreeva IV, Ratchina SA, Galkin DV, Petrotchenkova NA, Demin AA, et al. The inventory of antibiotics in Russian home medicine cabinets. Clin Infect Dis 2003 Aug;37(4):498-505.
4. Okumura J, Wakai S, Umenai T. Drug utilisation and self-medication in rural communities in Vietnam. Soc Sci Med 2002 Jun;54(12):1875-1886.
5. Ali et al. Self-medication practices among health care professionals in a private university, Malaysia. International Current Pharmaceutical Journal, 1 (10). 302-310. 2012.
6. Montastruc J.L et al. Pharmacovigilance of self-medication. Therapies, 52 (2). 105-110. 1997.
7. Guidelines for the regulatory assessment of medicinal products for use in self-medication. Geneva, World Health Organization, (WHO) 2000.
8. Ali A. Razzak M. Noori: Irrational Self-Medication of Antibiotic in University of Kufa in Annajaf Medical Journal of Babylon 7:2 , 2014.
9. Anna K. Szkaradkiewicz, Tomasz M. Karpiński Microbiology of chronic periodontitis journal of Biology and earth sciences 201 3; 3(1): M1 4-M20.
10. International study group for Behcet's Disease. Lancet 1990; 335:1078-80.
11. Sinan Şermet, Müşerref Asuman Akgün, Şükran Atamer-Şimşek: Antibiotic Prescribing Profile in The Management of Oral Diseases Among Dentists in Istanbul MÜSBED 2011;1(1):35-41.
12. Azhar Iqbal; The Attitudes of Dentists Towards the Prescription of Antibiotics During Endodontic Treatment in North of Saudi Arabia J Clin Diagn Res. 2015 May; 9(5): ZC82–ZC84.

13. C Ramu* and TV Padmanabhan: Indications of antibiotic prophylaxis in dental practice- Review Asian Pac J Trop Biomed. 2012 Sep; 2(9): 749–754.
14. P. N. bennet, M. J. Brown : Clinical pharmacology: 9th ed CHURCHILL LIVINGSTONE 2003: pp 201- 209.
15. Bertram G. , Susan B. Masters, Anthony J. Trevor: Basic & Clinical Pharmacology 12th ed. 2010. by Lange Medical Publications.
16. Daniel E. Becker: Adverse Drug Reactions in Dental Practice Anesth Prog. 2014 Spring; 61(1): 26–34.
17. Bartlett JG. Clinical practice. Antibiotic-associated diarrhea. N Engl J Med. 2002;346:334–339. [PubMed]
18. Hempel S, Newberry SJ, Maher AR, et al. Probiotics for the prevention and treatment of antibiotic-associated diarrhea: a systematic review and meta-analysis. JAMA. 2012;307:1959–1969. [PubMed].
19. Gerding DN, Johnson S. Longo DL, Fauci AS, Kasper DL, et al, eds. Harrison's Principles of Internal Medicine. 18th ed. New York, NY: McGraw Hill;; 2012. Clostridium difficile-associated disease, including pseudomembranous colitis.

TABLES:

Table (1) chief compliant that led to AB self-administration

Signs and /or symptoms	number	%
Pain in single tooth	91	36.4%
Swelling	66	26.4%
Generalized pain all around teeth	39	15.6%
Previous pain because of filling in another clinic	37	14.8%
Previously extracted tooth in another clinic (pain)	17	6.8%

Table (2) AB used by study sample

AB used	Number	%
Amoxicillin	196	78.4%
Rodogyl®	35	14%
Cefodox® (cefpodoxim)	19	7.6%

Table (3) source of AB prescribing or advice:

Source	Number	%
Previous prescription by dentist	81	32.4%
Pharmacist	68	27.2%
Self-decision	59	23.6%
Family, friends or neighbors	33	13.2%
Internet	9	3.6%

Table (4) clinical examination results for study sample with dental management and the need for AB after that:

Clinical examination	Number	%	Drugs prescribed
Simple fillings	93	37.2%	None
Root canal treatment	41	16.4%	Levofloxacin
tooth extraction	38	15.2%	Lincomycin injection
Replacing missing teeth	22	8.8%	Mouth wash
Generalized root planning (more than one visit)	21	8.4%	Levofloxacin or Rodogyl®
Dry socket cleaning	13	5.2%	Levofloxacin, lincomycin
Orthodontic treatment	8	3.2%	Mouth wash
Patients referred to otolaryngologist because there is no dental problem	7	2.8%	Given by otolaryngologist
Re- extracting remained or left root	4	1.6%	Levofloxacin, lincomycin
Night guard appliance	1	0.4%	Mouth wash
Referred to neurologist (trigeminal neuralgia)	1	0.4%	Mouth wash
Bechet disease. Referred to dermatologist	1	0.4%	Colchicine
Total	250	100%	