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ANTIBIOTICS: USE AND MISUSE IN THE NURSERY DENTISTRY

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Annotation: Antibiotic prescriptions have been on the increase worldwide, leading to increased antibiotic resistance. Inappropriate use of antibiotics has been blamed on lack of education and continuing professional development, and also on patient demand even when they are not required. This study was carried out to find out the pattern of prescriptions by Swedish dentists using data provided by pharmaceutical industry. The data shows that although the number of prescriptions is on the increase in Sweden, dentists still prefer to use conventional antibiotics such as Penicillin V for the treatment of oral diseases.

Key words: Antibiotic prescription habits, Swedish Dentists.

Antibiotics are defined as organic substances originated from micro-organisms and are capable of inhibiting the growth of or destroying another micro-organism at low concentration. Penicillin was the first antibiotic discovered by Sir Alexander Flemming in 1928.Since then the use of antibiotics has steadily increased both in human treatment and animal disease management. Inappropriate prescription of antibiotics is a well- known problem with several adverse affects on general population. Other than increase in the prevalence of drug resistant bacterial infections, adverse reactions ranging from gastrointestinal disturbance to fatal anaphylactic shocks, emergence and dissemination of resistance of some species through genetic pathway along with economic misuse have drawn the attention of health care professionals, scientists and policy makers regarding the problem of antibiotic misuse.The overuse and misuse of drugs, particularly antibiotics by dentists has caused a wide spread concern among health care providers.Rational drug usage is one of the most important subjects of continuing professional education for the whole dental profession.Teaching basic pharmacology to dental students is absolutely necessary to build knowledge about the pharmacokinetics and pharmacodynamics of drugs, dentists need comprehensive and relevant instruction about pharmacotherapy.Justifying the use of antibiotics in treatment of infection has been emphasized due to the increasing rate of antibiotic resistance.Very little information is available on the knowledge and understanding of general dental practitioners concerning the use of antibiotics in everyday clinical practice.Bacterial resistance is defined as the unresponsiveness of bacteria to the antimicrobial action of a given antibiotic such that the subjected organism may establish the ability to nullify the action of the antibiotic or to continue multiplying in its presence. Broad spectrum antibiotics such as penicillin, flouroquinoles, cephalosporins are showing a higher rate of resistance due to inappropriate prescribing habits by dentists.n Sweden, antibiotic consumption has increased steadily during 1980's. and beginning of 1990's, the revelation of multi-resistant pneumococcal clones in early 1990's among children particularly in daycare centers of Skane county in southern Sweden, which concerned the medical professionals and medical authorities to prompt their co-ordination for the prevention of further spread of these resistant clones.6 A national association, STRAMA (Swedish strategic program for rational use of antimicrobial agents and surveillance of resistance) was started in 1994 and came into act in 1995, on the whole its plan was to preserve the efficacy of accessible antimicrobial agents. It is from the background of the universal manifestation of antibiotic resistance that the European Centre of Disease Control (ECDC), marked Tuesday 18th November 2008 as the first ever European Union Antibiotic Awareness Day in an effort to

improve the use of antibiotic therapy within the society and healthcare profession.Of the 40 million oral courses of antibiotic distributed in England every year, a noteworthy fraction (over 3 million) is prescribed by dentists. Antibiotic account for the huge majority of medicines prescribed on a daily basis by dentists, with analgesics, antifungal and antiviral agents accounting for small proportions of the drug recommendations.In 2004, a study of over 6000 general dental practitioners showed that 40% dentists were giving antibiotic therapy on at least three occasions every week. The investigation also showed that 15% dentists prescribed antibiotics on day to day basis.7Nevertheless, it is more and more being accepted that such prescribing habits are inappropriate and avoidable.To counter general problem of emergence of antibiotic resistant bacteria, the Standing Medical Advisory Committee's sub-group on antimicrobial resistance has recommended the development of high quality evidence- based prescribing guidelines, medical and dental education, campaigns of public education, and surveillance of success through national, regional and local audits. A study in United Kingdom concludes that there is a lack of knowledge for the use of antibiotic, and that dentists often need to know specific guidelines for prescription and proper usage of antibiotic.A combination of non-regulatory and regulatory interventions, directed at providers as well as consumers, would need to be implemented to improve prescription practices of health care providers.Regulations alone would be ineffective unless they are supported by a well established institutional mechanism which ensures effective implementation. The aim of this study was to describe the antibiotic prescription habits of dentists in major cities of Sweden.

It was a descriptive study on antibiotic prescriptions by dentists of major cities of Sweden. It was based on International Medical Services (IMS) data of the total and also dental antibiotic prescription habits of dentists of twenty one major cities of Sweden. This data is a percentage and numbers were provided by a reputable pharmaceutical "APOTEKET" of Sweden. The data constitutes the total prescriptions, city wise breakup and age wise breakup of antibiotics. The data constituted dental antibiotic prescriptions in community care, which were given in percentage and numbers for all the different cities. According to WHO's Anatomical Therapeutic Chemical (ATC) classification system with Defined Daily Doses (DDDs), the data of antibiotic prescription habits were converted into prescriptions per 1000 inhabitants and also the number of prescriptions were calculated from the given data. Number of prescriptions and prescriptions for 1000 inhabitants were calculated for the year 2000 to 2008 for the total as well as dental antibiotic prescriptions. It was also calculated for the major antibiotics (Therapeutic classes) used in dentistry as well as for the total antibiotic prescriptions by all the dentists of the twenty one major cities of Sweden. RESULT The data of this study shows antibiotic prescriptions per 1000 inhabitants in community care by dental surgeons in different age groups from the year 2000-2008. The general trend shows an increased number of antibiotic prescription specially penicillin in the age group of 65 years and above. The highest numbers of prescriptions were noticed in the year 2007 the majority being penicillin. The second highest number of prescriptions was noticed of amoxicillin in the year 2008, both for the age of 65 years and above. The prescribing habit for metronidazole and clindamycin has been relatively consistent throughout all these years and all age groups, The highest number of Defined Daily Dose per 1000 inhabitants per day was also noted in the year 2007 for penicillin for the age group of 65 years and above value being 1.35. The least number for the same drug was noticed in the year 2000, the value being 0.83. The Defined Daily Dose per 1000 inhabitants per day for amoxicillin, clindamycin and metronidazole has been consistent throughout these years values ranging from 0.04 to 0.00.

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