Antibiotic prophylaxis in Dentistry: a teaching experience using conceptual maps

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ABSTRACT

The use of antibiotics is widespread in Dentistry because of the risk of exposure of the patient to infectious agents during clinical practice. Thus, it is important that the professional in the area can use antimicrobial protocols. This paper aims to report the experience of conceptual mapping in the teaching of antibiotic prophylaxis in Dentistry. The following topics were considered: drug types, drug selection, dosage, and clinical management in acute infections. Initially, a bibliographic review was performed on prophylactic protocols and meaningful learning in order to appropriate the students to the method on which this work is based. Three conceptual maps were assembled, each by two students. Despite the visible difficulty in organizing all the ideas to be used and even the lack of some, the structuring of conceptual maps was considered satisfactory, within its pedagogical role of provoking learning.

Descriptors. Antibiotic Prophylaxis. Teaching. Meaningful Learning.

1 INTRODUCTION

Health education in Brazil - historically developed under a traditionalist bias - has undergone significant changes, incorporating innovative methodologies that aim at a meaningful learning. On such methodologies the new information generates a meaning, reaching the relevant connection between the knowledge that the individual already has and the clear understanding about what is being studied. Among the possible tools to confirm such theory, a diagramatic form known as concept map or conceptual map[3-8] is used.

With regard to the use of drugs with antimicrobial effects, it is important to highlight the existing knowledge about these drugs and their purposes. Since the discovery made by Alexander Fleming until the present time, there has been a revolution about these drugs, which can be used in prophylactic protocols or as treatment for previously determined infections[9-11]. In Dentistry, in some clinical situations the prescription of antimicrobials is of great relevance, as a form of prevention of serious and acute affections, as is the case of bacterial endocarditis [12-15].

In this respect, the effective qualification of dental surgeons is required for the correct prescription and administration of antimicrobial medication. The fact that this type of drug is among the most mistakenly used denotes the need for knowledge about its mechanisms of action and the types of microorganisms to be stricken in order to prevent some form of microbial selection and resistance[16,17].

Based on the principles of meaningful learning, this paper aims to report the experience of teaching antibiotic prophylaxis in Dentistry at undergraduate level, starting with the production of conceptual maps.

2 EXPERIMENT REPORT

Six students from the Dentistry course of the Federal University of Pará (UFPA) carried out this experiment from November 2016 to March 2017, as part of the activities of the course of Review and Deepening of Basic Sciences III.

The following themes were considered for the construction of conceptual maps on antibiotic prophylaxis: drug types, drug selection, dosage and clinical management in acute infections.

In spite of the existence of specific software for the construction of conceptual maps, Microsoft Power Point 2013 was used in this research, due to the ease of handling and familiarity by the students.

Initially, a literature review was performed on prophylactic protocols[11,19] and meaningful learning in order to familiarize the students with the method on which this work is based.

The first network conceptual map, assembled by students 1 and 2 (Figure 1), deals with the characteristics of each antibiotic, correlating their basic types and on which microorganisms they act[11,19-21]. The second map (Figure 2), assembled by students 3 and 4 covers the mechanisms of action of antibiotics. The third conceptual map (figure 3), constructed by students 5 and 6 denotes the organization of a prophylactic protocol for acute mouth conditions.

In figure 1 it is possible to notice that dosage, minimum inhibitory concentration and treatment interval were not approached and there was no deepening in values and classification of bacteria as from Gram staining. The question concerning antibiotic spectra involving the availability of oxygen in its aerobic and anaerobic classification was not raised by the students. The conceptual map prepared lacks adjustments[22] because the spectrum of action should be taken into consideration from the perspective of therapeutic efficacy against certain species of microorganisms[11].

In the conceptual map of figure 2 it is possible to verify a synthesis about the action of the antibiotics mostly used in dental practice[11]. However, the lack of detail on how these mechanisms occur[18,19,21] is noted. Given that it is a summarized map, such details may be overlooked and take it as a teaching facilitator in the learning process.

In figure 3 a conceptual map in the spider web model[7] can be verified, which covers several aspects related to acute infections. However, it is fitting to note the lack of information about the therapeutic development of bacterial endocarditis, in addition to not taking into account the selection of the antibiotic and some possible mechanism of bacterial resistance, and it should also list the types of main microorganisms in certain oral microhabitats, in order to determine the best drug choice[10,11,13,15,18,20].

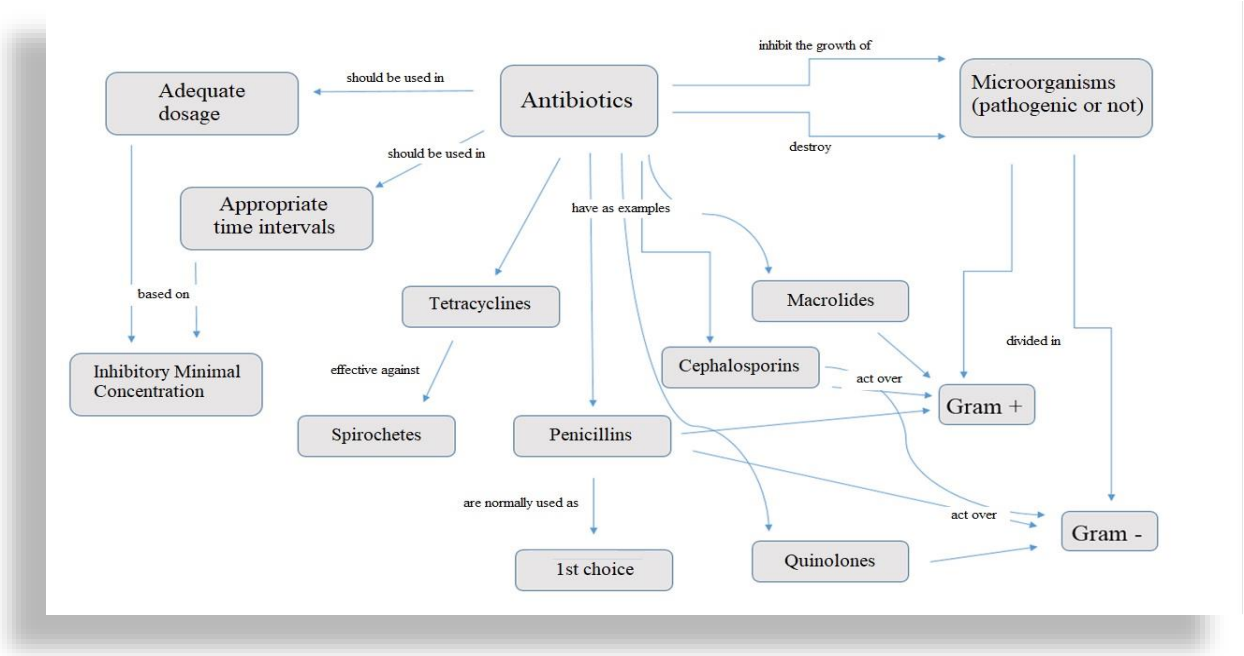

Figure 1. Conceptual map on the general characteristics of antibiotics.

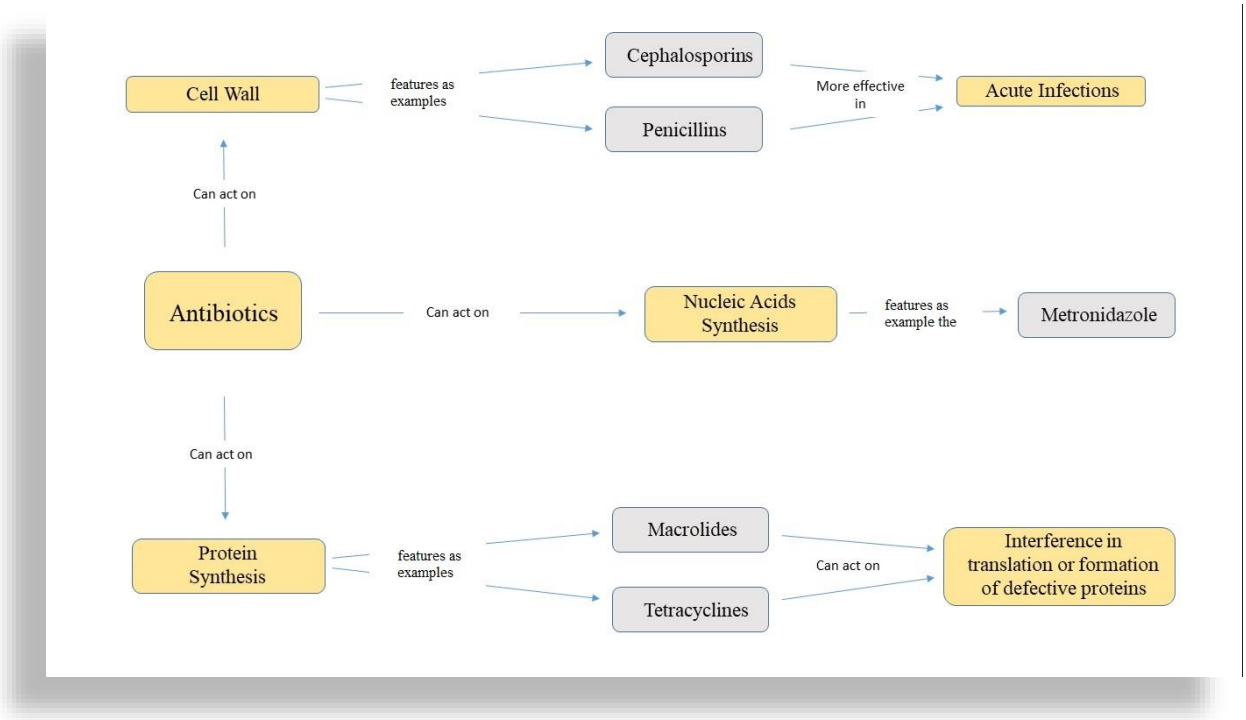

Figure 2. Conceptual map on the action mechanisms of antibiotics used in dentistry.

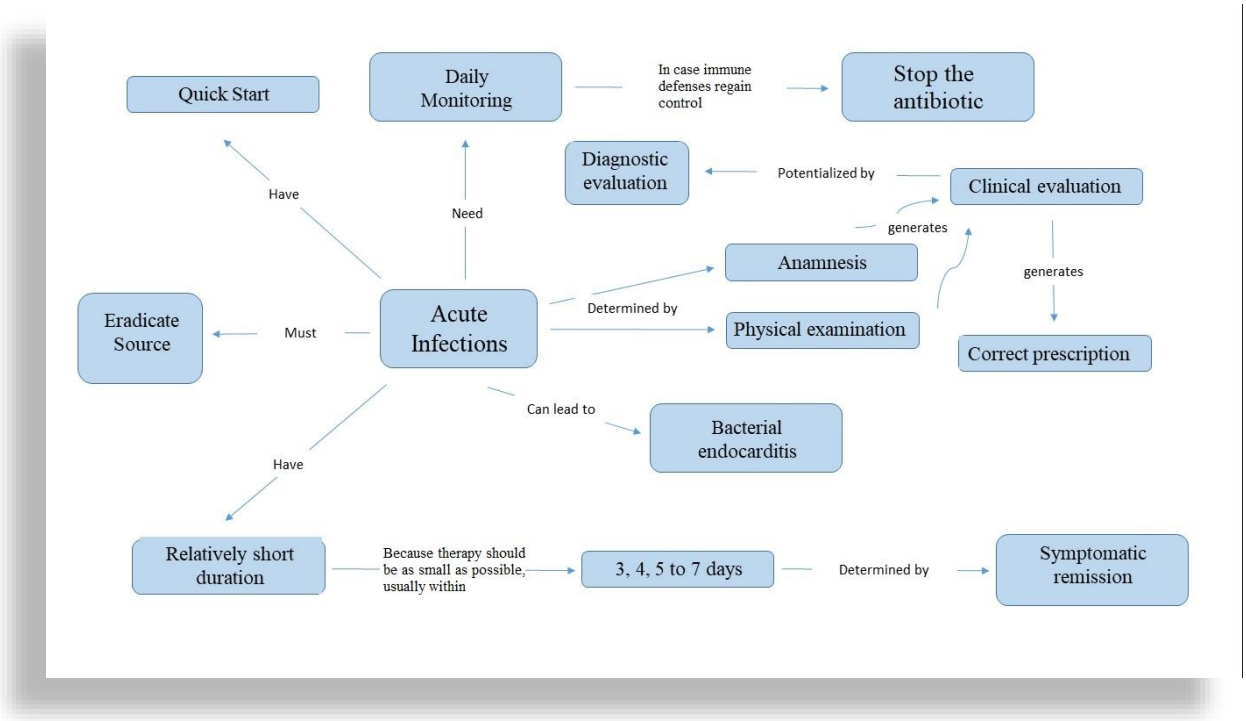

Figure 3. Conceptual map of the organization of a prophylactic protocol for acute diseases.

It should be understood that the conceptual maps proposed herein serve as a guide for the construction of a prophylactic protocol as of the time a student or professional is prepared to replicate their concepts with greater ease and credibility, based on the construction of such maps.

3 FINAL CONSIDERATIONS

The antibiotic prophylaxis should be recommended by a dental surgeon based on a protocol that such a professional should establish for his or her work plans. In this sense, although there are no studies directly related to the production of these protocols, it becomes important to systematize this process by using different teaching methodologies.

In the meaningful learning theory one can, starting out from the construction of conceptual maps, for example, structure a line of thought originating from previous and new knowledge, building up a schematic and organized result, which can map out the actions for a protocol formulation.

Despite the visible difficulty in organizing all the ideas to be used, and even the lack of some of them, the structuring of conceptual maps was considered satisfactory, within its pedagogical role of enhancing learning.

RESUMO

Antibioticoprofilaxia em Odontologia: uma experiência de ensino utilizando mapas conceituais

O uso de antibióticos é amplamente difundido em Odontologia, devido ao risco de exposição do paciente a agentes infecciosos durante a prática clínica. Desta forma, é importante que o profissional da área esteja apto a utilizar protocolos antimicrobianos. Este trabalho visa relatar a experiência de construção de mapas conceituais no ensino de antibioticoprofilaxia em Odontologia. Foram considerados os seguintes

temas: tipos de fármaco, seleção do fármaco, dosagem, e conduta clínica nas infecções agudas. Inicialmente foi realizada revisão bibliográfica acerca de protocolos profiláticos e da aprendizagem significativa, a fim de apropriar os estudantes ao método em que este trabalho está baseado. Foram montados três mapas conceituais, cada um por dois estudantes. Apesar da dificuldade visível em organizar todas as ideias a serem utilizadas e até a falta de algumas, a estruturação dos mapas conceituais foi considerada satisfatória, dentro de seu papel pedagógico de suscitar a aprendizagem.
Descritores: Antibioticoprofilaxia. Ensino. Aprendizagem.

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