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USE OF AUDIOVISUAL RESOURCES TO RAISE AWARENESS ABOUT INTESTINAL DYBIOSES INDUCED BY ANTIBIOTICS

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Abstract: The intestine is composed of thousands of microorganisms that are essential for the correct functioning of the various structures of the human body, where the lack of them can cause an imbalance known as intestinal dysbiosis. This imbalance can be caused by several situations, including the irrational use of antibiotics, due to the fact that the drug directly attacks the intestinal microbiota. Recent studies point to dysbiosis as a possible cause of some pathologies, such as obesity and depression, disorders that are currently much discussed. A viable way used to restore the microbiota in cases of imbalances are prebiotics and probiotics that can be acquired through a balanced diet and also with the use of supplements. The methodology was characterized as exploratory, with studies by some authors who contributed significantly to the theme for the production of the video, as a resource for awareness and health promotion about intestinal dysbiosis. This present work aims to inform professors, professionals and students in the health area about intestinal dysbiosis induced by the irrational use of antibiotics, with the aim of promoting awareness and health promotion in a multidisciplinary way, using audiovisual resources, with intention of a didactic superior to the conventional ones. One of the many challenges to popularize correct health information is to bring scientific concepts and information closer to people's daily lives in a simple and easily accessible way.
Keywords: Intestinal dysbiosis; Antibiotics; Health education; Audiovisual resources.

INTRODUCTION

The intestine hosts thousands of microorganisms that build a complex microbial community with multiple metabolic functions, which is very important for the correct functioning of the organism (LIN and ZHANG, 2017). The break in the cooperation between microbiota and host can cause several consequences in the human body, being caused by the decrease or modification of the microbial load, occurring in pathological conditions both at the intestinal and extra-intestinal level (ALMADA et al., 2015).

Intestinal dysbiosis is the microbiota imbalance syndrome, when there is an aggravation of proliferation or a decrease in a specific population of microorganisms beneficial to proper intestinal functioning, being triggered by several factors including the use of antibiotics, such as penicillins. semi-synthetic (SILVA, 2019).

This process, called dysbiosis, is a disorder increasingly considered in the diagnosis of various diseases and characterized by colonic dysfunction due to alteration of the intestinal microbiota, in which there is a predominance of pathogenic bacteria over beneficial bacteria. This term was popularized at the end of the 19th century in Europe (PÓVOA, 2002).

Health education is a teaching-learning process that aims to promote health (PEDRO; STOBAUS, 2003) and the pharmacist thus becomes an important mediator for this to occur, as the pharmacist can perform his/her duties with creativity and multiplicity of alternatives, including educational actions to promote health.

This work aims to inform teachers, professionals and students in the health area about intestinal dysbiosis induced by the irrational use of antibiotics, in order to promote awareness and health promotion in a multidisciplinary way, using audiovisual resources, with the intention of a didactic superior to the conventional ones.

THEORETICAL BACKGROUND

DISBIOSE

Dysbiosis is a disorder of the intestinal microbiota, increasingly common and relevant in the diagnosis of various diseases such as:

obesity, depression, among others (ALMEIDA et al., 2009). Some studies identify correlations between certain pathologies and alterations in the host's microbiota. It was found that patients with depression or autism had changes in their enteric microbiota (COTILLARD et al., 2013). The brain and the intestine are responsible for forming a bidirectional communication axis and information can be generated both at the intestinal and nervous system levels (SILVESTRE, 2015).

> There is growing evidence that the intestinal symbiotic community has a key impact on the dialogue established in the brain-gut axis, which is why it is considered essential for maintaining the health of the host, given that commensal microorganisms influence the ENS and the CNS. Thus, the dynamic interaction established between the big and small brain (intestine) plays a critical role in host homeostasis. However, in addition to the neuronal component, there are other signaling pathways, equally important for this axis, namely hormonal, metabolic and immunological. The different communication pathways provide the enteric flora and its metabolites with different ways to establish contact with the brain. This allows relating and inferring about the influence that the complex intestinal bacterial community can exert on human behavior. (SILVESTRE, 2015, p.7)

Changes in connections along the gut-brain axis due to dysbiosis are important in linking with mental illnesses such as depression, anxiety, among other pathologies (YARANDI et al., 2016).

Differentiation in the composition of the microbiota caused by the use of antibiotics in conjunction with stress can directly affect the central nervous system, where inflammatory cytokines interfere with brain neurochemistry and make individuals more vulnerable to depressive disorders and anxiety disorders (JONGE, 2013).

In Figure 1, Landeiro (2016) describes the relationship between the brain-intestine axis, demonstrating the healthy state and with the installed stress/disease. According to the study by Almeida et al. (2009), Cotillard et al. (2013), Silvestre (2015), Yarandi et al. (2016) and Jonge (2013) some changes in communication and changes in the intestinal microbiota can affect the brain-intestine axis connection, making it possible to identify some psychic pathologies such as depression and anxiety.

Intestinal dysbiosis may also be linked to obesity, given that increased intestinal permeability and irritable bowel syndrome, in which the disharmony of the intestinal microbiota occurs, which often impedes the normal functions of the colon, resulting in a vulnerability in the intestinal tract. health of the individual and preventing the balanced functioning of the organism (PÓVOA, 2002).

PHARMACEUTICAL CARE

The pharmaceutical professional has fundamental duties with regard to the protection and guarantee of collective and individual health, acting in a similar way in actions in education for the well-being of the population and health promotion, taking into account the prevention of diseases, having the commitment to provide the population with medicines and health care in conditions of effectiveness, rationality, safety and quality (MATOS, 2012).

In Figure 2, Wannmacher (2004) reports that there are countries where antimicrobials are used without a medical prescription in up to two thirds of the occasions. Even when these drugs are formally prescribed, their indication may be unnecessary in one out of every two cases (WANNMACHER, 2004).

There is no good evidence on the most important causes involved in this excessive consumption, but it is believed that several factors contribute crucially, such as the

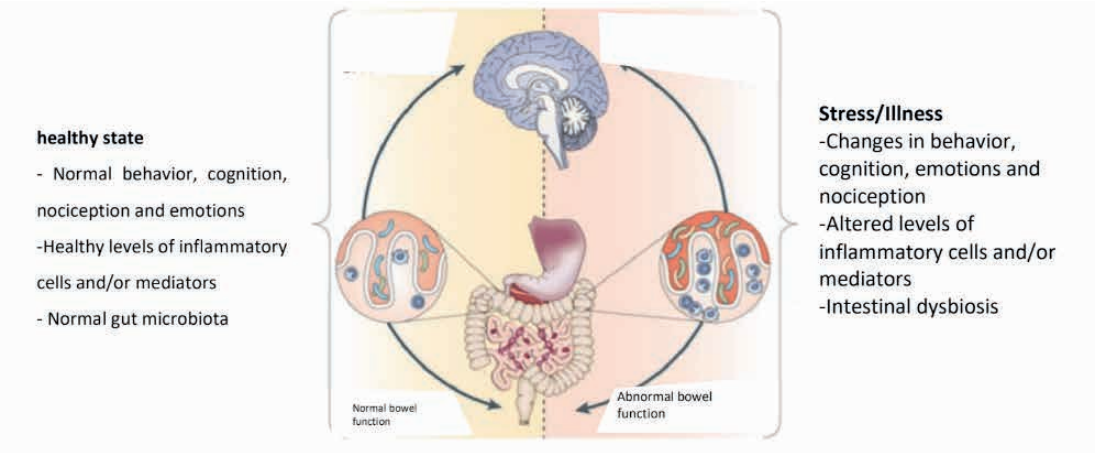

Figure 1. Gut-brain axis relationship

Source: LANDEIRO, 2016

- More than 50% of prescriptions are inappropriate.
- 2/3 of antibiotics are used without a doctor's prescription in many countries.
- 50% of consumers buy the medicine for 1 day, 90% buy it for a period equal to or less than 3 days.
- Over 50% of the drug budget is devoted to antimicrobials.

Figure 2. Reality of antimicrobial use

SOURCE: WANNMACHER, 2004.

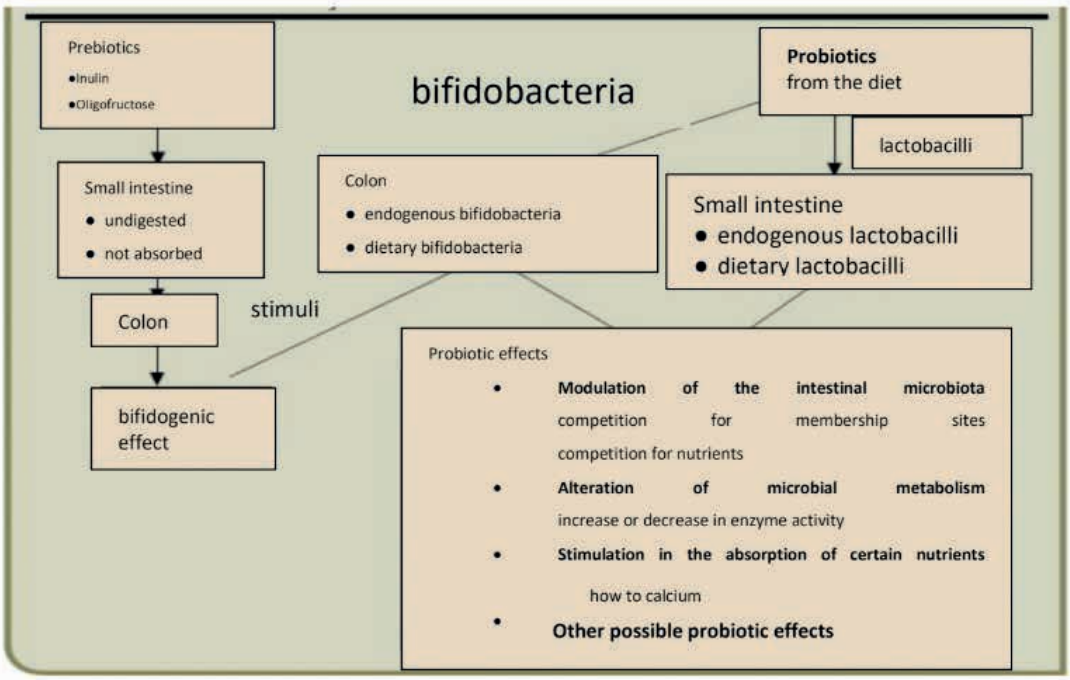

Figure 3 - Fate of probiotics and prebiotics in the human body, and the main mechanisms of action of probiotics

SOURCE: FOOD INGREDIENTS BRAZIL, 2011.

patient's expectation of receiving effective treatment, the increasingly short time of medical appointments (high and low demand remuneration), fear of litigation and pressure from the pharmaceutical industry and health plans to reduce the number of re-consultations and requests for diagnostic tests (JENSEN, 2010).

The rational decision in choosing an antimicrobial is a complex process, which needs a clinical laboratory diagnosis together with pharmacological knowledge of infectious agents. This choice must be made by a qualified and qualified professional, becoming a challenge for pharmacists. Once the choice and prescription of the antimicrobial has been made by the responsible professional, the pharmacist must guide and monitor its administration, providing greater safety and efficiency in the therapy (BISSON, 2003).

PREBIOTICS AND PROBIOTICS

Prebiotics and probiotics are important for the process of restoring the microbiota in cases of possible imbalances caused by intestinal dysbiosis. Through a balanced diet, it is possible to promote the improvement of numerous intestinal diseases in order to improve the quality of life (BEDANI; ROSSI, 2009).

The consumption of prebiotics brings numerous benefits for the correct intestinal functioning, as it stimulates the growth and increases the activity of one or more species of beneficial bacteria in the colon, being also capable of inhibiting the proliferation of pathogens, bringing a series of privileges to the host (PAIXÃO ; CASTRO, 2016).

Prebiotics are food components that play an important role for the host, as they function as substrates, nourish a select group of microorganisms that inhabit the intestine, stimulating their growth and the production of short-chain fatty acids that are used as an energy source (NICHOLSON et al., 2012).

> The benefits to the health of the host attributed to the ingestion of probiotic cultures that stand out are: control of the intestinal microbiota; stabilization of the intestinal microbiota after the use of antibiotics; promotion of gastrointestinal resistance to colonization by pathogens; decrease in the population of pathogens through the production of acetic and lactic acids, bacteriocins and other antimicrobial compounds; promoting lactose digestion in lactose intolerant individuals; stimulation of the immune system; constipation relief; increased absorption of minerals and production of vitamins (FOOD INGREDIENTS BRASIL, 2011).

In a healthy intestine, health-promoting bacteria mainly of the genus *Bifidobacterium* and *Lactobacillus*. These beneficial bacteria are easily found in fermented products, yogurts and food supplements (RAIZEL et al., 2011).

Figure 3 reports the fate of prebiotics and probiotics in the human body, the main mechanisms of action of probiotics and also prebiotics as bifidogenic factors.

Probiotics are living microorganisms that, when ingested in adequate amounts, exert a series of beneficial effects on the body (SAAD, 2006), increasing the activity of beneficial bacteria and the health of the individual. Studies prove the benefits of using probiotics after treatment with antibiotics to rebuild the load of microorganisms responsible for the proper functioning of the intestine (VARAVALLO; THOMÉ; TESHIMA, 2008).

AUDIOVISUAL RESOURCES

Educational videos have been used in several pedagogical experiences, demonstrating the relevance of their applicability in the teaching-learning process, as they combine various elements, such as images, text and sound in a single object to promote knowledge (GÓMEZ; COBOS, 2013).

The audiovisual resource is characterized

by being a didactic and technological instrument that provides knowledge, favors critical awareness and health promotion (DALMOLIN et al., 2016).

Within this context, of health promotion in the face of intestinal dysbiosis, it is suggested to expose ideas through audiovisual resources. The use of audiovisual media is not only a didactic resource, but also a way to create a new medium that collaborates in the construction of knowledge, due to the resource enabling the synthesis between image and sound, being responsible for generating several beneficial sensations for the improvement of learning by contextualizing elements of motivation in the spectator (LIMA, 2001).

MATERIALS AND METHODS

The development methodology of this present work was characterized as exploratory. After defining the theme "Intestinal dysbiosis induced by antibiotics", we sought to study several authors who contribute significantly to the theme, in order to understand which aspects must be addressed in the production of the video to be adopted as a resource for awareness and health promotion. The following databases were used to carry out the bibliographic review: PubMed, SciELO and Google Scholar.

STEPS FOR MAKING THE VIDEO

In order to create the video, the following steps were followed: a brief presentation of the theme on the importance of a balanced intestinal microbiota for the proper functioning of various structures of the human body, definition of the theme intestinal dysbiosis, the importance of using probiotics and prebiotics for a better intestinal functioning, informing about the adverse effects caused by antibiotics on the balance of the intestine and the pathologies that can be acquired due to the imbalance of the microbiota. Figure 4 outlines a flowchart with the steps used to create the video.

PRODUCTION OF MEDIA CONTENT

The video production stage will rely on the work of a professional specialized in this area, who will use several editing and screen capture tools, a professional camera, two softboxes for adequate lighting, a lavalier microphone, among other equipment used for a better quality of audiovisual content.

The content will be displayed on the YouTube platform where it will be stored in HD (High Definition) format for better visibility of the content and will be shared in groups of health professionals, the target audience of this work.

RESULTS AND DISCUSSIONS

This present study did not intend to define a result, but to elaborate educational media material aimed at teachers, professionals and students in the health area, one of the many challenges of popularizing correct information aimed at health is to bring people closer to everyday life. concepts and scientific information in a simple and easily accessible way. But often, health professionals themselves have difficulty finding reliable materials that facilitate the dissemination of health promotion.

The aim is to build from reliable information through significant bibliographical references about dysbiosis with the purpose of contributing to the intestinal health of the population, promoting the rational use of antibiotics with the purpose of raising awareness among health professionals, providing better information about.

Adopting the video produced as a facilitator in the process of transmitting knowledge reaches people with mixed levels of education, which requires the presence of qualified people, in this case Pharmacy professionals,

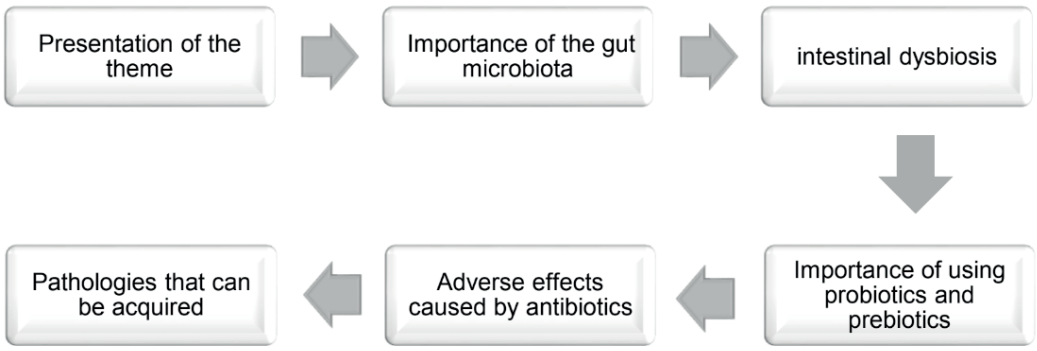

Figure 4 – Steps for making the video

SOURCE: elaborated by the authors.

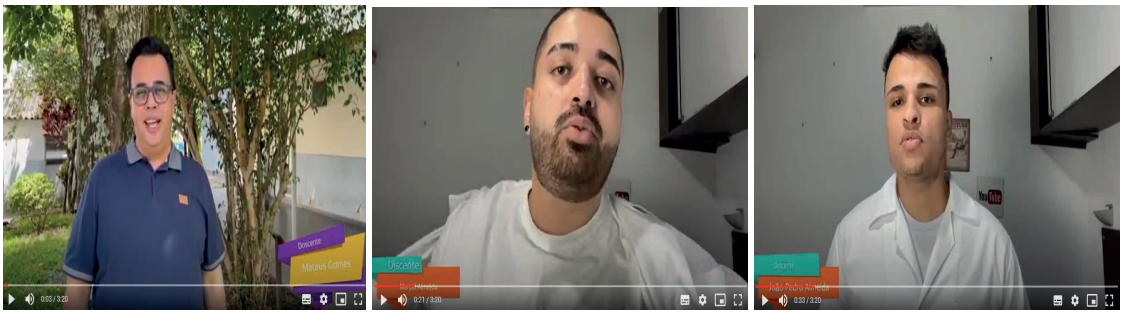

Figure 5 – Video excerpts

SOURCE: prepared by the authors.

to encourage discussions about the exposed knowledge. This way, an understandable relationship between the media and the educational space is necessary, and in the field of health and popular education, this resource allows the creation of an integration of knowledge, improved by the scientific knowledge of professionals.

The implementation of strategies, supported by audiovisual resources, articulated with broad teaching-learning practices that effectively contemplate the role of the pharmacist as a health promoter in an integral and multidisciplinary way favors the formation of critical-reflective students, generalists, committed to their social role and transformation agents. As a final product, the video can be accessed on the Youtube platform, at the address available at the link: https://youtu.be/rp05YdkRdg4. Figure 5 shows some captures from the finished video.

CONCLUSION

One of the responsibilities of the pharmacist is to promote health in line with the community and its public spaces, therefore, it is necessary to develop and improve technological resources that ensure social commitment, the fight and the fight against diseases, as example, through the elaboration of materials that help to disseminate health education. In the context of intestinal dysbiosis, intestinal microbiota imbalance syndrome, which affects a large part of the population due to the irrational use of antimicrobials, it is necessary to inform as a form of awareness and prevention. When there is a worsening of the proliferation or the decrease of a specific population of microorganisms beneficial to the intestinal functioning, among the cases in which antibiotics are used one in two prove to be inappropriate, so the material will be of great value to promote awareness among professionals. who are intimately caring for the quality of life and well-being of the population.

Therefore, it is considered extremely important to build knowledge about this topic, and the role of the pharmacist, as a health educator, is to provide subsidies so that information about this disease is provided to teachers, professionals and students in the health area regarding the dysbiosis induced by the irrational use of antibiotics, with the aim of broad health promotion in a multidisciplinary way. The transmission of knowledge must be carried out in a way that favors the understanding of the transmitted information, so that the process of assimilation of the content and the construction of knowledge are effectively achieved.

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