USE OF ZINC IN HEALTH FROM EARLY CHILDHOOD TO LATE AGE

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ABSTRACT: The aim of the present article is to make a brief approach of the literature about the benefits of the use of zinc and its influence on the organism. This element is a mineral that acts fixing the metabolic and physiological processes in all ages, mainly in pregnant women, elderly people and children.

The first recommendation about the prescription of zinc was made by the National Academy of Sciences in the Dietary Reference Intakes – DRI’s. In this document, individual dosages of zinc consumption are recommended and established in different levels/quantities. The maximum level of zinc, in this case, is determined according to the patient’s gender and age rate.

According to Bhatnalar & Natchu, it was seen that pregnant women who ingested supplements of zinc during the pregnancy had fetuses with a stronger activity and a more robust heart, compared to the fetus whose mothers did not take the mineral. In children, it was verified that the zinc helps in the early regeneration of the intestine with a therapeutic effect in cases of persistent diarrhea.

In the oral cavity, according to Henkin et al., the deficiency of zinc affects mainly the elderly, having associations with those who complain about mouth burning and dryness. Besides, another important change that has a larger incidence among the elderly is the halitosis, and the use of antiseptics made of zinc has been efficient in the treatment of this pathology.

In patients undertreated with radiotherapy, in conformity to Ertekin et al., agents with a biological activity similar to zinc (antioxidants) have been used to treat mucositis. Due to its wide specter of influence, we may say that zinc is a fundamental mineral to the human organism, producing a great number of benefits when on the right concentration.

KEYWORDS: Zinc; stomatology; geriatrics; flavor.

INTRODUCTION

Zinc is an essential mineral element to the metabolic and physiological processes in the human body. According to Bhatnagar & Natcau, zinc is essential for all ages, mainly for pregnant women, children and elderly people; and should be taken on the right amount for each period of life.

In the oral mucus membrane, the lack of zinc may cause infection or inflammation, especially in the elderly. According to Henkin et al., the most common complaint is mouth dryness and burning. In some patients under treatment with radiotherapy, a mucous reaction may show up, leading to mucositis.

To bar this progressive process, some agents with a biological activity similar to zinc are used. Children under treatment with radiotherapy and chemotherapy have a low blood zinc level.

Halitosis is also a pathology that may be treated with zinc products, since zinc is a mineral that has a selective process over H,S bacteria, H,S is a volatile gas from halitosis, in conformity to studies performed by Pratten et al.

Zinc can also act over Fusobacterium nucleatum and Prevotella intermedia, and zinc can also inhibits their catabolism therefore reducing their inflammatory potential.

In conformity to studies performed by Sgarbieri et al., water and electrolyte absorption get higher in children, helping in a fast intestinal mucous regeneration, enteric enzyme reactivation and interference in the immune cellular and humoral response, leading to a significant therapeutic result for persistent diarrhea cases.
BIBLIOGRAPHICAL REVIEW

Zinc is one of the elements which most act on DNA, RNA, membrane metabolism, cellular growth and division. Zinc is part of many metaloproteins and metaloenzymes, joining metabolic and physiological processes. Zinc is also essential to the maintenance of the mesenquimatic, cells of joining metabolic and physiological processes. Zinc is also part of many metaloproteins and metaloenzymes, RNA, membrane metabolism, cellular growth and division. It is also related to the hormones interaction and their receivers, and to after-receiver stimulation improvements and tissue formation.

According to kalluri & Neilson, zinc takes part in metabolic ways which involve protein synthesis, carbohydrate, lipid and nucleus acid metabolism. It is also related to the metabolic ways which involve protein synthesis, carbohydrate, lipid and nucleus acid metabolism.

Zinc is, according to the information above, an essential mineral for the organism for all ages, especially when it comes to pregnant women, elderly people and children.

According to Bhatnagar & Natchu, an amount of 15 mg per day of zinc with iron and float for pregnant women, caused the fetus to have a stronger activity and a more robust heart, compared to the fetus whose mothers did not take mineral. In conformity to Castillo-Duran et al. a zinc supplement may reduce low weight and premature birth.

Concerning children, Bhatnagar & Natchu have detected that zinc can improve water and electrolyte absorption, helping in a fast intestinal mucous regeneration; enteric enzyme reactivation and interference in the immune cellular humoral response, leading to significant therapeutic results in cases of persistent diarrhea.

In the oral cavity, the zinc level variation will lead into cellular genetic features modification, causing infection or inflammation injuries. So far, it has still been unknown how the genetic characteristics can lead into infectious diseases or inflammation in the oral cavity, but it is already known these injuries happen mainly to elderly people.

A lot of the aged patients complains about mouth burning and dryness. According to Henkin, there is a straight relation between zinc level variation and mouth dryness, this last one can lead to mouth burning.

Siddappa says the mouth burning happens under innumerable circumstances, but mouth burning is an unbalance in the oral cavity caused by pain and irritation on the mucous. That is why it is diagnosed by the whole conjuncture. The lack of B vitamin, folic acid, zinc and iron are among the regular causes.

Another important modification can happen to the patients’ mouth (mainly in aged patients), patients who are under treatment with radiotherapy, when a mucous reaction can lead to mucositis. According to Ertek in et al., agents with a biological activity similar to zinc are used to prevent and treat mucositis. Czajka-Narins say the zinc sulphate is good for the “oropharingeal” mucositis treatment induced by radiation; it is cheap, easy and there are no side effects.

Concerning palate disturbances related to mouth dryness, Negoro et al., analyzed palate disturbance frequency in patients with Sjögren Syndrome, whose clinical picture includes mouth dryness; although the series levels have been changed, there was no strong relation between this changing and the palate disturbances.

Selow describes halitosis as a pathology with high incidence in the elderly. Efficiency depends on the health of the patient. Also, the use of antiseptic agents may help. Pratten et al. detected that the products which contains zinc have a selective effect over H₂S producing bacteria. These bacteria are one important part of the volatile gas which characterizes halitosis.

Besides that, zinc may act over other oral microbiota. In conformity to Sheng et al., Fusobacterium nucleatum and Prevotella intermedia can have their catabolism inhibited by zinc, reducing the “microbiota gingival” inflammatory potential and cytotoxic. According to Sheng et al., zinc has inhibited the hydrogen peroxide production by F. nucleatum, on the other hand, in high concentration; zinc has increased the destruction power of the peroxide.

CONCLUSION

It was then noticed, from this approach on, the relevance and respective importance of the presence of zinc throughout and individual’s lifetime. Therefore and since zinc is found all over an individual’s body, thus having multiple functions and ways of (re)acting, especially as far as the immunological system, as well as the cell division during the DNA and the protein synthesis is concerned.

Here, it is also important and worth to mention the straight interference in an individual’s bucal health, once the deficiency of zinc causes disgeusy (changes in the sense of taste).


RESUMO: O objetivo deste artigo é realizar uma breve abordagem da literatura sobre os benefícios do uso do zinco e sua influência sobre o organismo. Esse elemento é um mineral que atua na correção dos processos metabólicos e fisiológicos em todas as idades, especialmente em mulheres grávidas, pessoas idosas e crianças.

A primeira recomendação sobre prescrição do zinco foi feita pela Academia Nacional de Ciências no “Dietary Reference Intakes – DRI’s”. Nesse documento, doses individuais de consumo de zinco são recomendadas e estabe-
lecidas em diferentes níveis/quantidades. O nível máximo de zinco, neste caso, é determinado de acordo com o sexo e a faixa etária do paciente.

De acordo com Bhatnalar e Natchu, 2 foi visto que mulheres grávidas que ingeriram suplementos de zinco durante a gravidez geriram fetos com melhor atividade metabólica e com coração mais forte, quando comparados aos fetos de mães que não tomaram o mineral. Nas crianças, foi verificado que o zinco ajuda na regeneração do intestino, com efeitos terapêuticos nos casos de diarreia persistente.

Na cavidade oral, de acordo com Henkin, 7 a deficiência de zinco afeta principalmente os idosos, tendo relação com aqueles que reclamam de queimação e boca seca. Além disso, existe entre os idosos uma grande incidência de zinco, neste caso, é determinado de acordo com o sexo e a faixa etária do paciente.

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Devido ao seu amplo leque de influência, pode-se dizer que o zinco é um mineral fundamental para o organismo humano, produzindo um grande número de benefícios quando na concentração correta.

PALAVRAS-CHAVE: Zinco; estomatologia; geriatria; aroma.

REFERENCES