

Live Old Age with Serenity, in Good Health

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ABSTRACT

Advances in medicine and lifestyle changes have had positive effects on the life expectancy of the population, therefore it is important to achieve healthy aging by reducing the risk factors that cause age-related damage and diseases. With a healthy diet we are able to modify these factors by modulating the intestinal microbiota. A diet rich in antioxidants, fiber, minerals and low in fat, provides beneficial effects on the body by interacting with intestinal bacteria and contributing to the maintenance of good health, moreover, with the prevention of age-related diseases such as diabetes and cardiovascular diseases.

Keywords: Old age, nutritional factor, foods, interaction food and drugs

INTRODUCTION

Old age is an inevitable phase of the biological cycle and therefore must not be understood as a disease, but as a normal and physiological event. The most recent studies have highlighted how all cells, even those in culture, have a fixed number of possible duplications, beyond which the signs of cell damage that will cause their death appear. The only ones to overcome this limit are tumoral cells in which the loss or alteration of the gene that encodes the time stamp protein, a biological clock that takes into account the duplications of a cell, causes a kind of immortality.

We can therefore consider cellular aging as a loss of the ability to defend and reproduce cells with the progressive appearance of some events as: lesions of the cytoplasm and intercellular substance that manifest themselves with gray hair, loss of skin and tissue elasticity, atrophy and decreased function of organs and tissues; decay of generative capacity and sexual desire with possible psychological implications; manifestations of hereditary and acquired late onset metabolic diseases; stabilization of outcomes of previous diseases.

All these factors together with social, family and economic conditions can also cause characteristic changes in the psyche. Due to the slow and progressive appearance of such events, the advent of old age can be schematized mainly in three phases:

Presenile period during which signs of aging begin to accumulate which may be indicated between 45-60 years of age.

Senescence is the phase in which physical and mental decay begins, between 60-75 years of age

Senility that occurs when all involutionary biological processes are clearly evident, advancing from 75 years to the end of life.

In the last century the population of industrialized countries has undergone an aging process that tends to increase more and more: in Italy the elderly represent the majority of the population with a different dynamic between north and south, where there is still a slight increase in births. In the north, the overall decrease in the population is more marked with a strong increase in the elderly, in particular elderly women, who live longer.

The great variability of elderly subjects which is linked to health conditions, economic conditions, the presence or absence of a partner, the presence of institutions for the elderly, does not allow to put on the same level a 65-year-old in good health, active and self-sufficient with the ultra 85 year old now lacking in strength. It is also important to consider that among the elderly the average age increases (the ratio 80/70 increases) following an average increase in life itself [1-4].

Among the elderly population, a clear distinction must be made between perfectly efficient and self-sufficient individuals, the sick elderly and the institutionalized elderly. With equal economic conditions there is still a notable difference between males and females.

Older women are often alone and self-sufficient, while men are assisted by nurses or caregivers both because they do not devote themselves to domestic activities and of poorer health. The economic situation assumes an important role, making the distinction between "rich and influential grandfather" and "poor and indigent old man" part of the current culture.

All these factors, together with the disappearance of the peasant hierarchical organization, in which the presence of women was always ensured to assist elderly relatives who are no longer self-sufficient, tend to influence the psychic state of the elderly who feels useless, burdensome, and begins to isolate himself, to let oneself go physically and morally with a rapid deterioration in health conditions and mental capacity.

Old age must not be considered as a degenerative process nor a disease without remedy: it depends above all on the individual sensitivity to accept this condition with strength and determination, keeping alive the physical and intellectual abilities [5].

The involitional process begins already between the age of 40-45, if we consider that at 25 we have 100% functionality. Neuronal degeneration presents a very early decay, starting, in normal conditions, already from the age of 20. In addition, at 25 years of age, 100% of the function is 94%, the lung capacity is 84%, the muscle strength is 88% and the renal function is 88%. Muscle and kidney we realize that already at 45 the heart works at 94%, lung capacity at 84%; and renal function at 88%. At 65 the values are respectively 87% for the heart, 62% for the lungs, 75% for the muscles and 78% for the kidneys. At 85 years the heart works at 50% and the muscle strength and lungs work at 55%, while renal function is 69% [6-8].

The neuronal loss that occurs over the years causes a certain atrophy in the brain of the elderly caused by a loss of nerve cells in some areas: cerebral and cerebellar cortex, anterior thalamus, hippocampus, locus coeruleus, with a decrease in dendritic processes and intracellular, accumulation of inclusions of various kinds; finally, a reduction in the quantity of the various neurotransmitters is noted [9-11].

However, this process is neither inevitable nor continuous, but can depend on inadequate nutrition, both qualitative and quantitative, including the abuse of smoking and alcohol, to which is added a reduced motor activity [12-15].

The Food Needs of the Elderly

Socio-economic and family conditions, education, any institutionalization, possible disabilities, psychological problems, any work and hobby activities, influence the nutrition of the elderly. Food needs are tailored to four essential factors: 1) Biotype; 2) Personal tastes and habits; 3) Previous or current illnesses; 4) Work activity.

It should be borne in mind that in the elderly there is a decrease in physical activity in general which is followed by a slowdown in the basal metabolism; a decrease in digestive secretions with slowed gastrointestinal transit; a reduction in absorption and often intestinal atony with relative constipation. From what has been said it is evident a lower energy need which has been calculated around 2100 calories for males and 1750 for females [16]. This value is recommended for a self-sufficient individual, without specific diseases and with a normal relationship life. The type of diet must not differ from that of an adult man regarding quality, but quantity. It must be considered that a very abundant meal is harmful for a young person and could be fatal for an elderly person. Therefore, all the fundamental nutritional principles must be included in the diet of the elderly, but in small quantities, paying attention to the consumption of fats, sugars, sweets and spirits, the latter of which must be consumed with great moderation [17].

Nutrition of Over-60s in Good Health

Foods perform multiple functions in the organism, providing both the energy necessary to perform certain jobs, and nutritional material for growth, replacement of cellular structures and tissue repair. From a chemical point of view, the main constituents of food are proteins carbohydrates and lipids that can perform plastic and energy functions; vitamins and mineral salts that are essential for maintenance of some physico-chemical and physiological characteristics, as well as catalyze the enzymatic processes of the organism. For the maintenance of good health, food nutrients must be present in certain quantities in the diet. It is very important to know both the characteristics of the nutrients and the composition of the food [18-20].

Carbohydrates

Carbohydrates are the most important components of human nutrition constituting 50-60%. Although they perform structural functions in the form of mucopolysaccharides, glycoproteins and glycolipids, they provide above all energy support: half of the energy developed by the body comes from the oxidation of glucose. Carbohydrates

perform various metabolic functions: they can be easily converted into lipids; allow an optimal use of fatty acids; they supply precursors of non-essential amino acids; they exert a protective and detoxifying function in the liver.

In the elderly, carbohydrate metabolism is overall reduced due to a probable reduction in cellular respiration enzymes and glycolysis, with a consequent reduction in oxidized glucose for each unit of ATP produced. Therefore, there is a tolerance limit to the intake of carbohydrates which must not exceed 60% with a preference for complex sugars in order to avoid harmful hyperglycemic peaks [21-24].

From the many tests carried out, it is evident that in the elderly the insulin secretion is not altered at all, but rather the sensitivity has decreased due to a decrease in tissue receptors. Some researchers have highlighted how the absorption of carbohydrates is a variable dependent on the decrease in enzymatic activity of the subject: in fact, after the administration to some elderly patients of cooked foods containing starch cereals, potatoes and rice, significant differences were noted in the glycemic curve. The blood glucose level differed shortly after rice administration; it increased sharply with potatoes and even more after feeding pasta and bread. The combination of different foods was also considered noting how bread and cheese caused a sharp increase in the glycemic peak, while bread and legumes showed a modest increase. For the elderly, not all carbohydrates can be considered in the same way, but in relation to the physiological response to which in the diet: rice is recommended, preferably not polished, followed by legumes and spaghetti; little bread, sugar, honey and sweets.

Glucose is the main source of energy that is used by all cells for the functioning of the heart, lungs, brain, for controlling body temperature. It participates in metabolisms essential for life such as glycolysis, glycogenesis, glycogenolysis, the Krebs cycle, gluconeogenesis [25-27].

The intake of large quantities of carbohydrates and impaired tolerance causes chronic hyperglycemia, diabetes 2, with activation of particular metabolic pathways that exploit glucose without insulin intervention. Organic damage is observed caused by non-enzymatic glycosylation of proteins including the beta chains of hemoglobin with reduced oxygenation of the tissues due to a lack of 2,3 diphosphoglycerate; glycosylation of albumin and consequent deposit in the glomerular membranes and glycemic nephropathy; glycosylation of lipoproteins with

increased LDL compared to HDL; glycosylation of fibrin and fibrinogen with deposit in retinal, glomerular capillaries and epineural arterioles; glycosylation of collagen, myelin and lens proteins [28].

With the passing of the years, the diminished chewing and digestive capacities lead to the choice of foods rich in carbohydrates for their easy preparation and low cost even if in some cases they cause post-prandial heaviness and swelling [29]. Currently it has been shown that the lack or reduced use of glucose depends on a lack of chromium, an essential cofactor for glucose tolerance: it is found in brewer's yeast, egg yeast and unrefined cereals [30,31].

Proteins

They are the fundamental constituents of all living beings, where they perform both plastic and energetic functions as well as defensive, catalytic and regulating functions. Enzymes, antibodies and some hormones are, in effect, of a proteic nature. Proteins are polymers made up of chains of amino acids and are divided into simple or conjugated according to whether they release only amino acids by hydrolysis or compounds of another nature such as lipids, glycolipids, nucleic acids.

The human body is unable to assimilate proteins as they are, but they must be hydrolyzed into the constituent amino acids through the continued and sequential action of the various proteolytic enzymes of the gastrointestinal tract. Amino acids are absorbed by the intestinal mucosa and through the bloodstream transported to various areas of the body where, depending on the case, they are used for protein synthesis, to provide energy, or to be transformed into other metabolites. Protein synthesis represents a fundamental process both in the growth period for the formation of new structures, and in adulthood in which a continuous renewal of the body's proteins occurs.

Functional proteins such as enzymes and hormones can be synthesized from exogenous amino acids at a rate that depends on cell turnover [32, 33].

A portion of amino acids present in the blood stream can be used for energy purposes when the energy demands are not satisfied by the oxidation of lipids and carbohydrates: in conditions of strong hypoglycemia, the liver can use part of the amino acids both of an exogenous nature (food proteins) and endogenous (plasmatic proteins) to form glucose through the process of gluconeogenesis.

The amino acids deriving from the digestion of proteins can be used for the synthesis of numerous cellular constituents: biosynthesis of heme; choline biosynthesis required for phospholipids; biosynthesis of amino sugars important for connective tissue; biosynthesis of both purine and pyrimidine nucleotides; biosynthesis of biogenic amines (acetylcholine from serine; dopamine, adrenaline and noradrenaline from tyrosine; serotonin from tryptophan; Histamine from histidine; GABA from glutamic acid).

The importance of these metabolic pathways and the products that originate from them make it necessary to have a balanced protein intake not only from a quantitative but also a qualitative point of view. It must be remembered in this regard that not all amino acids can be synthesized by the body; in particular the following 8 amino acids, Tryptophan, Leucine, Isoleucine, Methionine, Lysine, Phenylalanine, Threonine, Valine, which are called essential amino acids and must be introduced with food.

Of particular importance are three branched chain amino acids, leucine, isoleucine and valine which alone represent 40% of the minimum requirement of amino acids in man, because they are not only the essential substrate for protein synthesis, but are precursors of essential biochemical reactions. Leucine is able to stimulate insulin production; it is an important precursor for the biosynthesis of sterols in muscle and adipose tissue; it inhibits the production of urea by the muscle.

Isoleucine and valine can both regulate the synthesis of proteins in skeletal muscle, and regulate the production of gluconeogenic substrates from the muscle to the liver. errors in replication and production of defective proteins; an alteration of the enzyme synthetase would produce a defect in the specificity of the amino acid structure and consequently in the protein synthesis.

The amino acid requirement is evaluated by the nitrogen balance intended as the difference between the nitrogen introduced and the nitrogen removed. In the normal adult the nitrogen balance is in balance, a negative balance indicates malnutrition, final diseases, febrile states; a positive balance occurs in the period of growth and during convalescence. Not all proteins are equally effective in contributing to the regulation of the nitrogen balance, but the biological value depends on the content of essential amino acids: the diet provides the quantity of nitrogen sufficient for the synthesis of the other amino acids and also a number of calories sufficient for their metabolic utilization.

In the elderly it is easy to verify malnutrition with a deficient protein intake [34,35].

The amount of daily protein has been calculated between 1.3-1.2 g / kg of weight, but it is not always satisfied. There are many causes starting from a precarious chewing situation, a low socio-economic condition, to phenomena of malabsorption and alterations of the enzymatic patrimony. If it is true that the high cost of meat discourages many retirees who for economic reasons have to give up the slice of meat. Essential amino acids are also present in fish, of which there are many cheap varieties, in eggs and in milk, foods that, taken in moderation, do not cause any disturbance, on the contrary they are rich in choline and calcium [36-38].

As regards the phenomenon of malabsorption, it can be divided into two phases: one is linked to an atrophy of the gastric mucosa and hyposecretion combined with a decrease in biliary and pancreatic secretion which do not allow an effective hydrolysis of proteins and poor absorption of amino acids; the other is due to a decrease in motility and intestinal transit [39].

Lipids

Lipids represent a heterogeneous class of compounds that perform different functions: energy storage; thermal insulation; constitution of cell membranes and maintenance of their integrity; vehicle for the absorption of fat-soluble vitamins; regulation of hunger centers; contribution to the palatability of foods.

There are two main classes: simple lipids to which neutral fats belong such as esters of cholesterol, vitamin A, esters of vitamin D, triglycerides and waxes; complex lipids to which phospholipids, cerebrosides and lipoproteins belong.

All these types of lipids are present in food, but the most prevalent are triglycerides that have all three alcoholic functions of glycerol esterified with fatty acids. Triglycerides are solid or liquid depending on whether the fatty acids are saturated or unsaturated: the first category is formed by fats, the second by oils. Of considerable importance is the fact that some unsaturated fatty acids such as linoleic and linolenic and arachidonic cannot be synthesized by our body, but must be taken with food: they constitute "essential fatty acids". They play very important metabolic roles: they are the precursors of hormone-like substances such as prostaglandins, thromboxanes and leuko-trienes; they regulate the metabolism of cholesterol;

maintain the integrity of cell membranes; prevent drying of the skin.

The role of essential fatty acids is of particular importance in the prevention of atherosclerosis, arterial thrombosis and cardiac function. This activity is carried out with a lowering of the level of cholesterol in the blood, reducing the possibility of it settling on the arterial walls. The mobilization of cholesterol is carried out by lipoproteins, macromolecules made up of a protein fraction and a lipid fraction in various quantitative and steric ratios. They are classified according to their density in: chylomicrons, very low density lipoproteins or VLDL; low density lipoprotein or LDL; high density lipoprotein or HDL.

Chylomicrons are formed at the enteric level, they have a density of less than 0.9, consisting of 1% of proteins and 80% of lipids, especially triglycerides, and carry the lipids absorbed by the intestinal mucosa.

VLDLs have a density lower than 1, consisting of 10% of proteins and the rest of triglycerides: they carry triglycerides of endogenous origin and are synthesized especially in the liver.

LDL are the most important with a density between 1.00 and 1.06 consisting of 25% protein and 45% cholesterol: they are synthesized directly at the hepatic level; they would result from a modification of VLDL consisting in a partial replacement of triglycerides with cholesterol. Their main function is the transport of cholesterol from the liver to the tissues.

HDL have a density of less than 1.06, made up of 45% of proteins and the remainder of phospholipids; they are synthesized in the liver.

It would be advisable from childhood to operate a prevention by paying particular attention to the lipid composition of foods, in which a mixture of saturated and unsaturated fatty acids are present. The optimal qualitative ratio is about 2/3 of vegetable fats and 1/3 of animal fats. Saturated fatty acids are the components of solid fats at temperatures environment and they found in foods of animal origin. The fats of chicken, of fish and pork, while being solid at room temperature, contain polyunsaturated fatty acids.

Oils contain polyunsaturated fatty acids with the exception of coconut oil which is composed of saturated fatty acids. On the contrary of the protein share, there is a convergence of ideas on the fact that the lipid share of the elderly should be reduced due to decreased functionality of the pancreatic lyase which together with the bile

acids contribute to the hydrolysis and absorption of fats. The lipid requirement for the elderly must not exceed 0.6 g / kg and must contain at least 6% unsaturated acids; it is also recommended to consume little refined foods capable of ensuring a sufficient amount of phospholipids necessary for the supply of essential fatty acids and for the biosynthesis of serine, choline, inositol [40-45].

Vitamins

They are a group of substances whose input from the outside is indispensable for the life of the organism. Some of them are plant-based, others are synthesized either by microorganisms or by some animal species. They are chemically classified as: Water-soluble: B1 B2 B6 B12 PP C Biotin, choline, pantothenic acid, a folic acid; Lipsoluble: A E D K.

Water-soluble vitamins are of considerable importance as coenzimatic factors of many enzymes; fat-soluble vitamins are absorbed at the intestinal level with dietary fats and accumulate preferably in the liver and fatty tissue. They are essential for the functioning of certain organs and tissues and are therefore highly specific. The vit. A has a protective meaning for epithelial tissues; the vit D intervenes in oxidation; vit K in the clotting process; vit E is necessary for reproductive processes. Vitamins deficiencies cause serious ailments and avitaminosis leads to real diseases such as pellagra, scurvy [46-50].

In the elderly, hypovitaminosis is found much more easily than in adults due to inadequate nutrition in the use of long-lasting foods. The choice of foods must be such as to ensure a sufficient intake of each vitamin. In the elderly the deficient state of vitamins, in particular the vit. C , B12 ,Folic acid, can contribute to the reduction of cognitive abilities by pointing out that the decline that is accompanied by aging is mainly due to dietary factors. Vitamin deficiencies are responsible for the modification of the skin, the oral cavity, the loss of teeth, the reduction of muscle mass. The importance of the vit should also be stressed. C in reducing plasma levels of cholesterol and triglycerides and preventing cancer [51].

The state of hypovitaminosis found in the elderly indicates that it is necessary to treat the food, especially with a diet rich in vegetables and fresh fruits, because the concentrations of vitamins decrease during cooking and storage. The deficient state of vitamins C, D, A, E, B₁₂ ,pyrodoxine and thiamine in an elderly person in good health concerns above all a poor diet which

therefore must be integrated with the administration of supplements even for a long time, not presenting phenomena of toxicity[52-54].

Minerals

Minerals are the only substances that are not produced by the body, but must be taken from food. They are represented by salts whose ions take part in the establishment of important structures and act as catalysts in various physiological processes. They are distinguished in massive elements, that is, present in rather significant quantities such as Na, K, Ca, Mg, Cl, P, S, and oligodynamic elements present in small quantities or even in traces. In recent years it has been extremely important to be able to determine the presence of these elements in the body to identify a deficient state. The insufficient contribution of one of the essential trace elements leads to pathological states with well-defined clinical aspects. It is important to take care of the choice of food because mineral salts are present in unrefined cereals, fruit, fresh vegetables, dairy products, meat, fish, natural aromas, although almost always in very small concentrations. It is necessary to consume an adequate amount of foods with little sodium chloride and above all vary the diet. A good state of health depends on the complete presence of all mineral elements, but attention must be paid to toxicity phenomena arising from the accumulation of these elements both as a result of an alteration of absorption mechanisms, and for an incorrect choice of foods in which the presence of fibers, phytic acid, and oxalates complex some or all the oligo elements.

In cases of reduced nocturnal visus, common to the elderly, contemporary administration of Zn and vit A is required, otherwise there is no improvement, after administration of only one of these substances. Important is the calcium content, as insufficient intake is considered the main cause of osteoporosis. The need for calcium increases with age because there is a reduction in intestinal absorption and more suitable food sources rich in calcium, in addition to milk and dairy products, are vegetables, chard, eggs, legumes, dried fruit. The other minerals important for the elderly are iron, present in hemoglobin, necessary for the transport of oxygen in tissues; magnesium essential for the process of mineralization and development of the skeleton; chromium intervenes in carbohydrate metabolism; copper intervenes in the synthesis of the heme, in the metabolism of connective and bone tissue; selenium is an essential component of glutathione-peroxydase with antioxidant action.

The silicon is an element of particular importance, so far overlooked by nutritionists because little known. In vitro studies have shown that it is localized in the young bone, in the areas of growth, and takes part in both calcification and the formation of connective tissue. It also plays an important role in the formation of the extracellular substance that envelops collagen and elastic fibers. The interest in the geriatrics arises from its drastic decrease in the arteries, aorta and skin, which lose their elasticity. There is a hypothesis that some forms of osteoporosis refractory to treatment with vit D and calcium could be attributed to a silicon deficiency. This element is present in rice, oats and cereals grown on silicate-rich lands [55-57].

Dietary fibers

Dietary fibers are a very heterogeneous group of substances which, due to their chemical structure, are neither digested nor absorbed by the small intestine. Their digestion takes place in the colon, where they not only contribute to the regulation of intestinal transit, but also perform very important tasks for health. Cellulose and lignin are fibers that are poorly fermented by intestinal enzymes and, if associated with sufficient hydration, increase bowel motility and increase the volume of stool. Fibers, as a result of the reduction in the speed of digestion, also optimize the sense of satiety and are of great help in case of overweight. Other fibers such as pectins, mucilages, oligosaccharides are nourishment to the bacteria of the colon - the intestinal microbiota - from which they are fermented and are capable of inducing physiological effects that are of great benefit to the body. In fact, as a substrate of the intestinal microbiota which represents a defense and control organ for the body, fiber contributes to the prevention of numerous diseases such as cardiovascular diseases, obesity, type 2 diabetes, some cancers and also the risk of infections and inflammatory diseases, modulating the activity of the immune system.

The fibers naturally present in food are divided into two categories: Insoluble fibers as cellulose, lignin, some hemicelluloses present in cereal-based products, especially wholemeal ones; Soluble fibers as some hemicelluloses, glucans, pectins, gums, carrageenans, inulin ... present mainly in fruit and vegetables, legumes, algae, potatoes and cereals.

Numerous authors recommend the daily intake of 30- 40 g/day of fiber to improve intestinal functions, but the elderly neglect these precious foods due to a diet not very rich in fruit and

vegetables, often resorting to fiber supplements that they could cause annoying swelling, meteorism and abdominal pain[58-61].

Alcohol

The elderly are the most at risk of health relapses from alcohol consumption. Many deaths related to excessive alcohol consumption occur in people over the age of 65 and the number of drinkers at risk is destined to increase due to the rapid aging of the population. In the elderly, the type of death linked to the consumption of alcoholic beverages often concerns falls, suicides, cardiovascular diseases, neuropsychiatric diseases and tumors. Several organs are affected: oral cavity, pharynx, stomach, liver, colorectal cancer and breast cancer [62-64].

The report between alcohol and the circulatory system is very complex: an excess can, in fact, cause cardiomegaly, while taken in small doses it exerts a preventive action on atheromatous degeneration of the arteries and the onset of myocardial infarction. The mechanism of action by which alcohol protects the arteries is attributed to a reduction in total cholesterol with an increase in HDL cholesterol, which, as is known, represents a protective factor for coronary artery disease. It has been shown that even moderate physical exertion has a beneficial effect on HDL so small doses of alcohol are recommended for those who perform sedentary jobs.

90% of ethyl alcohol is metabolized by the liver, which also suffers the greatest damage when the quantities are excessive. In the hepatocyte, in fact by the action of the alcohol-dehydrogenase it is converted into acetaldehyde which reduces the mitochondrial oxidizing capacity and its accumulation is highly toxic. Ethanol induces lipid peroxidation both through the production of oxygen and free radicals. In addition to altering the integrity of the cell membrane, the oxidative process of lipids also causes the formation of toxic compounds such as aldehydes capable of inhibiting protein synthesis (mitochondrial dehydrogenase activity, liposomal enzymes activity). Alcohol abuse is common among the elderly who live alone and often suffer from depressive crises and can also be determined by a reaction to the changes that aging brings to life, such as the interruption of social contacts or the loss of one's autonomy. Diseases and unhappiness can also be the cause why the elderly take refuge in alcohol in search of anxiolytic effects[65,66]. Even without there being real addiction, excessive consumption can have disastrous consequences, because with old age there is a reduced resistance to the effects of

alcohol, whose action is often enhanced by the intake of drugs. It has a depressing rather than a stimulating effect and taking it in large doses compromises brain functions by reducing attention, judgment, coordination and reflexes. Beyond individual sensitivity, the quantity of absolute alcohol must not exceed 20-30g /day, corresponding to a couple of glasses of medium alcoholic wine [67,68].

Food and Drugs

It has long been known that there is a relationship between what we eat and the preservation of health, including effective defense against disease. Substances contained in unbalanced diets from a quantitative point of view and qualitative can provoke diseases such as atherosclerosis, angina pectoris, stroke, and they can be the cause of osteoporosis and some tumor pathologies [69, 70].

Cholesterol, for example, an alcohol belonging to the sterol family, is present in the cells and fluids of the body and requires attention in maintaining its moderate level in the blood. Foods particularly rich in cholesterol, liver and egg yolk, can increase the levels of this molecule in the blood constituting a risk factor for the development of atherosclerosis and related diseases such as angina pectoris, myocardial infarction and stroke. It is therefore of fundamental importance to reduce high levels of cholesterol in the blood to prevent cardiovascular disease [71-75].

Osteoporosis is a disease that causes a reduction in bone density that occurs when adequate amounts of calcium are not taken, an element contained mainly in milk and derived products. Without the right calcium intake, one of the main constituents of bone tissue would be missing [76-79].

Ethyl alcohol is another element that deserves attention due to its presence in many widely consumed beverages around the world. The assumption daily use of small amounts of alcohol is not harmful in healthy adults; if such quantities are ingested during meals can even favor digestive functions, improving the secretion of gastric juices and the motility of stomach.

Due to the bodily modifications associated with aging such as the increase in body fat and the decrease in lean mass, there is a higher concentration of alcohol in the blood with negative effects on the central nervous system; alcohol is often responsible for aggression, road accidents and domestic accidents. The damage to health caused by the excessive consumption

of alcohol is due both to its direct toxic action, as well as to the alterations on some organs such as the liver, and also to the onset of tumors localized to the esophagus and mouth. Alcohol also causes nutritional deficits, reducing appetite and the absorption of vitamins, minerals such as magnesium, phosphorus and calcium and promotes the weakening of the immune system [80-85].

In old age there is a very high incidence of chronic diseases and a greater susceptibility to the disease, therefore the need for adequate nutrition is evident. The elderly, due to multiple chronic diseases, need a significant number of drugs, with very serious consequences for the side effects of the latter, and for their proven propensity to induce malnutrition [86-90].

Among the consequences of taking multiple drugs there is the risk of nutritional deficiency induced by the drugs themselves. The interaction between nutrients and pharmacological principles causes a reduction in food intake due to the secondary effects of the drugs (anorexia, nausea, vomiting), and due to alterations in the perception of taste; finally, drugs can interfere with the absorption of the nutrients themselves [91-95].

These side effects are not known for all drugs, but the possible interactions between drug and food to be taken into consideration mainly concern the variations in clinical symptoms when: two or more drugs are administered to a person already undergoing therapy for chronic disease; modification of the bacterial flora following prolonged administration, as occurs in the case of antibiotics; duration of treatment and dosage of the drug that cause a strong elimination of nutrients, as occurs for anticonvulsants, anticoagulants, chelants and antacids; interaction with excipients, as occurs for lactose in subjects with lactase deficiency or for the sodium salts of some antibiotics for subjects in which a restriction on sodium itself is required; some drugs taken orally before meals are gastrically damaged, others acid labile. In these cases, in addition to choosing an appropriate route of administration to obtain the therapeutic efficacy, the duration of therapy must also be evaluated.

The possible drug-nutrient interactions of the most common drugs in use are easily identifiable for antacids, diuretics, some antibiotics. The most obvious effects of drugs on nutrition are: stimulation or suppression of appetite; altered absorption of nutrients; alteration of metabolism and nutrient utilization; alteration of nutrient excretion. Food also exerts an action on

pharmaceuticals which is manifested by: modification of absorption, metabolism, excretion and also of therapeutic efficacy.

Scientific evidence is showing that the use of multiple drugs is one of the clearest evidence of malnutrition in the elderly [96, 97].

It is therefore important that the doctor carefully and specifically evaluates the various situations, advising in addition to the therapeutic treatment also an appropriate diet.

CONCLUSIONS

Aging is a universal biological process, characterized by a progressive and constant evolution of the organism with profound modifications of cells, tissues and organs, as well as alterations in physical, mental and intellectual conditions [98].

Therefore the diet of healthy seniors must not be excessive, but include proteins, carbohydrates in the right proportions and quantities, fresh fruit, vegetables and water: the latter is very important because it facilitates the work of the kidneys [99-102].

The organism in normal conditions eliminates about two liters of water to day; the physiological stimulus of thirst in the elderly is strongly diminished therefore they often run into dehydration because they do not spontaneously take the necessary amount of water. The daily quantity is about 1000-1500 ml, but it can vary in relation to the climate, the ambient temperature, physical activity and nutritional intake.

The diet of the elderly must be varied to stimulate the appetite with easily chewable, well-cooked, easily digestible, lean, low-flavored foods and with the minimum amount of salt.

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