VITAMIN C: THE KNOWN AND THE UNKNOWN

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Introduction. Vitamin C (Ascorbic Acid), the antiscorbutic vitamin, cannot be synthesized by humans and other primates, and has to be obtained from diet. Ascorbic acid is an electron donor and acts as a cofactor for fifteen mammalian enzymes. Two sodium-dependent transporters are specific for ascorbic acid, and its oxidation product dehydroascorbic acid is transported by glucose transporters. Ascorbic acid is differentially accumulated by most tissues and body fluids. Plasma and tissue vitamin C concentrations are dependent on amount consumed, bioavailability, renal excretion, and utilization. To be biologically meaningful or to be clinically relevant, in vitro and in vivo studies of vitamin C actions have to take into account physiologic concentrations of the vitamin.

Aim. Vitamin C function remains largely unexplored. The purpose of this work was to analyze the scientific literature and summarize the data on the participation of ascorbic acid in the regulation of metabolic processes in the body.

Materials and methods. Research methods are descriptive (data processing) and theoretical (analysis, generalization, comparison, conclusions) were determined by its purpose and objectives.

Results and discussion. Vitamin C is by its chemical nature an electron donor, commonly called an antioxidant. However the widely held assumption that vitamin C has an important role as an antioxidant in humans is unproven. The most well characterized actions are those as an enzyme cofactor, including those in which it is an actual cosubstrate. Ascorbate acts as an electron donor for fifteen mammalian enzymes. These include two monooxygenases, twelve dioxygenases and one amine oxidase. Most enzyme reactions where vitamin C acts as a cofactor require relatively low concentrations of the vitamin in comparison to the normal in vivo concentration. It is possible that as consequence of vitamin C transporter activity, many tissues contain significant amounts of vitamin C even in the face of deficiency, though such measurements in humans are not available.

Conclusions. For years, the potential beneficial effect of vitamin C on human health beyond that of preventing scurvy has been subject of much controversy. Vitamin C plays a pivotal role in body-building process and in disease prevention. Vitamin C alone or in combinations with drugs produced cancer-suppressive effects which involved redox, immune, and epigenetic mechanisms.

MEDICAL COMPLIANCE. ANALYSIS OF TRENDS IN RESEARCH

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Introduction. Compliance is extremely important for the success of any treatment. This fact explains the increased attention paid to scientific research in this direction. The results presented in numerous publications provide recommendations on how to improve compliance in the patient-doctor-pharmacist interaction chain and indicate the relevance of studying compliance issues.

Aim. The aim of our study is to analyze the compliance effect on the development of pathological processes, the development of new pharmacological correction schemes, clinical trials, and vaccination processes.

Materials and methods. Our research is based on the Global Health Observatory data from the World Health Organization.

Results and discussion. Numerically, compliance is measured in one unit, which is the maximum or "compliance ratio". Studies have recorded that the maximum compliance coefficient - 0.9 - corresponds to short-term drug therapy (0.9 - means that almost all the doctor's instructions are strictly followed). Compliance is reduced if treatment (dosages, drug regimens, etc.) becomes unnecessarily difficult for the patient. There has also been a decrease in compliance when the patient is unable to cope with the side effects of the drugs, even if he is aware of the usefulness of pharmacotherapy. With recommendations to "change lifestyle", the compliance coefficient may be 0.1–0.2 (that is, the doctor's instructions may remain just "good wishes", not entailing behavioral changes aimed at recovery). There are patients who steadfastly refuse any medicine, any method of treatment. The reasons for refusal are numerous and varied, as are the varied options for a person's attitude to treatment in general and to taking a particular medicine. And how many negative consequences are due to refusal to vaccinate against poliomyelitis, diphtheria and other dangerous infections.

Conclusions. The study of patient behavior in relation to prescribed therapy is a fairly new area of scientific research. Indirect methods are used based on data reported by patients in practice. The collection of information about taking the drug is carried out by filling out diaries, questionnaires and interviewing patientsIt has been proven that up to 70% of patients have partial compliance with prescribed drugs. Due to non-compliance, treatment refusal occurs, which is one of the main obstacles in the practice of all types of assistance. The failure of patients to adhere to the prescribed treatment is recognized as one of the most serious and common difficulties in medical practice.

LIPID PEROXIDATION IN THE BLOOD OF RAINBOW TROUT (ONCORHYNCHUS MYKISS WALBAUM) AFTER INCUBATION WITH EXTRACTS DERIVED FROM STALKS AND ROOTS OF GREATER CELANDINE (CHELIDONIUM MAJUS L.)

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Introduction. Lipid peroxidation has been implicated in the etiology of several diseases. It can be described generally as a process under which oxidants such as free radicals attack lipids containing carbon-carbon double bond(s) (Guéraud et al., 2010; Gaschler and Stockwell, 2017). Over the last four decades, an extensive body of literature regarding lipid peroxidation has shown its important role in cell biology and human health (Minotti and Aust, 1992; Halliwell and Chirico, 1993; Niki, 2008). Lipid peroxidation can alter vital membrane protein structure and function, and if unchecked, it could lead to cellular dysfunction and widespread tissue damage (Gutteridge, 1995). One of the consequences of uncontrolled oxidative stress (imbalance between the prooxidant and antioxidant levels in favor of prooxidants) is cells, tissues, and organs injury caused by oxidative damage. It has long been recognized that high levels of free radicals or reactive oxygen species (ROS) can inflict direct damage to lipids (Ayala et al., 2014; Ramana et al., 2017). The erythrocytes could be isolated and handled easily so that they could provide a good model for many assays (Alagawany et al., 2016; Farag and Alagawany, 2018). Additionally, the high concentration of polyunsaturated fatty acids in the membrane, the high oxygen tension, and redox-active hemoglobin molecules [the source of reactive oxygen species in erythrocyte] make them a good biological lipid