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BIOMINERALOGY OF CANCER
Biomineraloia nowotworów

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Abstract

Biomineralogical investigations of cancer in various tissues -- breast, connective tissue, skin, lungs, thyroid, pancreas, bone, cartilage, etc. -- have been conducted in our Laboratory with the use of mineralogical methods (SEM-EDS, EMP, IR, X-RD, ASA, etc.) for the last 40 years. Obtained results allowed us to discover elevated levels of various elements at tumor sites of mentioned cancers. Obtained data suggest local biomineralization og liquids may lead to creation of cancer.

Key words: mineralization, tissue , cancer

Streszczenie

Biomineralogiczne badania nowotworów różnych tkanek, piersi, tkanki łącznej, skóry, płuc tarczycy, trzustki, kości, chrząstki prowadzone były w naszym laboratorium z wykorzystaniem mineralogicznych metod (SEM-EDS, EMP, IR, X-RD, ASA, etc.) w ciągu ostatnich 40 lat. Otrzymane wyniki pozwoliły odkryć w tkankach nowotworowych podwyższone zawartości różnych pierwiastków e badanych tkankach nowotworowych. Może to oznaczać, że lokalna biomineralizacja płynów ustrojowych różnymi pierwiastkami i substancjami sprzyja powstawaniu nowotworów.

Słowa kluczowe: mineralizacja, tkanki, nowotwory

Studies regarding calcification -- general tissue and organ biomineralization (Pawlikowski) -- carried out in parallel to cancer research indicate a relation between the body's overall calcification and age. They also prove that a significant portion of the elements lost from bones in the process of osteoporosis (mainly P and Ca, but not only those), are not excreted from the organism but can crystallize in the crystallization centers found in various

tissues of the body (Pawlikowski 1987, 1991 b, c, 1993a, 1995a, 1999, 2003b, 2011, 2013, 2016 a, b, 2017 a, b, c,).

Such tissue mineralization is perceived as a two-stage phenomenon.

The first stage is hidden mineralization, which does not manifest by any changes that can be captured macro- or microscopically. Tissues look "normal", but their chemical analyzes carried out with sensitive methods indicate increased levels of some elements. This means that said elements get deposited in the tissues -- specifically in their atomic structures. It is believed that the elements can be deposited in spots of tissue destruction (destruction of atomic structure) where there are free bonds (crystallization centers capture migrating ions that have electric potential). The tissues mineralized in this way have physicochemical properties that are only slightly different from "healthy" (normal) tissues; nevertheless, e.g. joint cartilage affected by such mineralization is harder, less slippery, fragile and less flexible than healthy cartilage.

The second stage of biomineralization of tissues is the evolution of hidden mineralization into overt mineralization, which is observed as mineral concentrations, often so-called calcifications (in the arteries - arteriosclerotic plaque).

Mineralization may remain at the first stage of development or evolve into the second stage.

In the case of hidden mineralization, the moment of cell division is particularly sensitive, regardless of the tissue in which this cell is found. For when the division takes place in the "environment" where the amounts of elements and compounds are too small or too large (including external compounds -- so-called carcinogens), a defect may occur in the structure of the DNA section that is responsible for cell multiplication.

Such defect may occur in various tissues (cells), at various places in this section of DNA, and may be caused by various elements and compounds. The result is a variety of cancer types. The cell that has been deformed like that usually multiplies at a faster than normal rate, resulting in the formation of a huge number of cells observed as cancerous lesions (e.g. tumors).

Taking into account all of the above, it can be assumed that there is a connection between age, transfer of elements (mainly Ca and P) from bones to body fluids and tissues (osteoporosis), and incidence of neoplastic diseases (Pawlikowski, Niedźwiedzki 2002).

This picture is additionally complicated by carcinogenic external factors, which overlap with the natural process of biomineralization (calcification) of tissues associated with the transfer of elements from bones to soft tissues.

This process, i.e. bone demineralization (osteoporosis) associated with age and other factors, causes transfer of those elements to various tissues and, in effect, their "calcification", which contributes to the formation of neoplastic changes (Pawlikowski, Pfitzner 1999a, Pawlikowski 2013, 2014, 2016). Therefore, in view of the described phenomenon, it seems unfavorable to recommend a dairy-rich diet at an older age. It supports additional mineralization of body fluids and by superimposing on the "osteoporotic" mineralization, it accelerates the described biomineralization processes.

Therefore, demineralization of bones (osteoporosis) leads not only to "weakness" of said bones, but is a process of self-destruction of the body, which develops at different rates in different people. This is related to many factors – genetic, environmental, etc.

Investigating and fully understanding the processes described here may be the basis for fighting them and eliminating their deadly consequences. Biomineralogical research conducted in this area, as well as in many other fields, gives a hint of hope for positive results in the fight for health and life.

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