

# GLOSSARY

The terminology used in the medical field is not always easy to understand. This section is designed to provide a flexible and easy way to search for the meaning of some of the medical terms regularly used on this site.

## **B2-microglobulin serum**

Protein normally present on the surface of white blood cells, the concentration of which is correlated to the number of multiple myeloma cells in the body, and is the best single indicator of tumor burden.

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## **Bence Jones protein**

Free light chains of monoclonal immunoglobulin secreted in the urine in some patients with myeloma.

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## **Biopsy of the lymph node**

Procedure for the removal of a tissue sample from a lymph node.

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## **Biopsy bone marrow**

Withdrawal procedure of a bone fragment that contains the bone marrow.

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## **Blasts**

Immature myeloid cells in the bone marrow and peripheral blood not fully differentiated.

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## **Bone marrow**

Part of the internal spongy bones where the blood cells (white blood cells, red blood cells and platelets) are formed.

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## **Calcium**

The most abundant mineral in the human body, important for healthy bones and teeth.

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## **Calorie**

Unit of energy. Each macronutrient (carbohydrates, fats and proteins) introduced into the body is transformed into energy. The amount of energy (and calorie) foods varies according to their composition: fat produces about 9 calories per gram, while proteins and carbohydrates produce about 4 calories per gram.

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## **Carbohydrates**

One of the three macro-nutrients (the other two are fats and proteins) that make up our diet. They exist in various shapes and are the main source of energy for the body.

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## **CAT (Computerized Axial Tomography)**

Diagnostic imaging technique in which data collected by the passage of various X-ray beams in the affected area are processed by a computer to reconstruct a three dimensional image.

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## **CBC**

Complete blood laboratory examination, which determines various parameters including the amount of cells (white blood cells, red blood cells and platelets) and hemoglobin levels in the blood.

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## **Chemotherapy**

Therapy based on the use of chemicals and drugs to kill the cells. Although the term also includes the treatment of infectious diseases, in which the pathogens are killed, in everyday language it is used mainly in relation to cancer, in which cancer cells are killed.

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## **Chromosome**

Compact and organized structure that contains most of the DNA of a living organism.

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## **Clinical examination (or clinical examination)**

Investigation by the patient's physician after collecting medical history. It includes the set of diagnostic procedures aimed at seeking objective signs (other than subjective symptoms reported by the patient) indicative of a pathological condition.

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## **Comorbidity**

Co-existence of several diseases in the same individual.

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## **Computed tomography**

Diagnostic imaging technique in which data collected by the passage of various X-ray beams in the affected area are processed by a computer to reconstruct a three-dimensional image.

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## **Cytogenetics**

The branch of genetics that studies the chromosomes and cell division.

Study the morphology of the chromosomes, as visible with an optical microscope, and the karyotype, i.e. the set of chromosomes of a cell.

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## **Creatinine**

Measuring the amount of the waste product creatinine in the blood. An increase in creatinine indicates kidney failure.

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## **Cryoglobulinemia**

Painful circulatory problems in hands and feet, it can also be painful, due to low temperatures.

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## **Diagnosis**

Clinical judgment which is the identification of a specific disease, according to the analysis of the clinical signs and symptoms reported by the patient and the results of specific imaging techniques.

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## **Diagnostic imaging**

Methodical which reveals, through the formation of images, the presence of a pathological condition, comprising radiology, computed tomography, ultrasound, magnetic resonance imaging.

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## **Erythrocyte sedimentation rate (ESR)**

The rate at which red blood cells precipitate in an hour; it is a measure of non-specific inflammation.

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## **Fatigue**

Sensation of tiredness that lasts, difficult to overcome and that leaves a feeling of total exhaustion at the emotional, mental and physical. As such a sense of fatigue is not related to the activities carried out and it is difficult to solve with sleep or rest.

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## **Fats (lipids)**

Nutrient Group characterized by higher power energy (9 calories / g, more than double the protein and carbohydrates). In addition to storing and delivering energy, fats have other important functions for the proper functioning of the body, but should not be consumed in excessive amounts so as not to be harmful to health.

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## **Fiber (dietary fiber)**

Class of foods devoid of nutritional value to humans (are not digested by the intestine) but which exert important functional effects such as increased satiety and improving bowel function.

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## **Focal lesions**

Alteration of tissues or organs, single and localized.

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## **Folate (or folic acid)**

Vitamin B group, important for the growth and reproduction of body cells.

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## **Free radicals**

Waste products that are formed inside the cells, which are harmful to the body.

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## **Granulocytes**

Type of white blood cells with granulations characteristics inside them.

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## **Granulocytopenia**

Count reduced granulocyte in peripheral blood.

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## **Hemoglobin**

Component of red blood cells prepared to carry oxygen in the blood.

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## **Hemorrhage**

Leakage of blood from vessels (arteries, veins, capillaries).

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## **Hepatosplenomegaly**

Increase the size of the liver and spleen.

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## **Hybridization in situ fluorescence (FISH)**

Very sensitive technique to detect chromosomal abnormalities.

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## **Hypercalcemia**

Increased calcium content in the blood.

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## **Hyperviscosity**

Increased viscosity and plasma volume, which is associated with headaches, blurred vision, retinal hemorrhage and bleeding oro-nasal.

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## **Hyperviscosity symptomatic**

Severe increase in blood viscosity checausa symptoms like headaches and dizziness.

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## **IgM**

Monoclonal immunoglobulin M monoclonal paraprotein or M is a type of antibody involved in the immune defense, produced by specific B lymphocytes, called plasma cells.

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## **IgM-MGUS**

Code that identifies the monoclonal gammopathy of undetermined significance, plasma cell disorder characterized by relatively low levels of monoclonal protein in the blood and/or urine, in the absence of symptoms related to myeloma (anemia, renal failure, hypercalcemia, and lytic lesions).

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## **Immune system**

Set of organs, tissues and circulating cells, distributed throughout the body and in communication with each other, able to intervene in defense of an organism.

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## **Immuno-Chemotherapy**

Combined therapy of chemotherapy and immunotherapy

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## **Immunophenotypic examination**

Examination aimed at identifying certain cells within a sample due to the recognition of specific substances expressed on the surface or within those cells.

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## **Immunophenotyping**

Examination aimed at identifying certain cells within a sample due to the recognition of specific substances expressed on the cell surface or within those cells.

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## **Immunosuppression**

The condition of a subject that is, for different reasons, to have reduced immune defenses.

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## **Immunotherapy**

Therapy that acts on the immune system.

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## **Incidence**

Measurement relative to the number of individuals who are affected by a disease (new cases) in a given period of time.

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## **Infection**

The process of invasion of an organism or parts of it (organs or tissues) by one or more microbial species (e.g. viruses, bacteria).

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## **Ionizing radiations**

Radiation whose energy is sufficient to cause the loss of electrons from atoms that become ions. The alpha and beta particles, such as gamma rays and X-rays, are all examples of ionizing radiation. The ultraviolet light, infrared and visible light are all examples of non-ionizing radiation.

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## **Iron**

Important mineral for the formation of hemoglobin, the protein in red blood cells that carries oxygen in the blood.

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## **Kidney failure**

Reduction of the kidney's ability to perform its functions.

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## **Lactate dehydrogenase**

Element of a group of enzymes detectable in the blood and in other body tissues and involved in energy production in cells. An increase of this substance in the blood can be a sign of tissue damage or certain types of cancers.

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## **Leukemia**

Type of cancer that affects the blood cells.

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## **Leukopenia**

Condition clinical characterized by an abnormal reduction in leukocytes (white blood cells) in the blood.

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## **Light Chains**

Portion of monoclonal protein or M protein characterized by low molecular weight. It can be linked to a heavy chain or it can be detached or free.

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## **Lymphadenopathy**

Enlarged lymph nodes.

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## **Lymphocyte**

Type of white blood cell that helps defend the body against infection. There are three main types of lymphocytes: B lymphocytes, which produce antibodies; T-lymphocytes, which have different functions, including assisting B lymphocytes in the production of antibodies; lymphocytes and natural

killer (NK) cells, which are able to attack the virus-infected cells and tumor cells.

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## **Lymphocyte B**

Type of white blood cell that helps to protect the body against infection. The B cells produce antibodies.

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## **Lymph Nodes**

Small rounded bodies belonging to the immune system distributed throughout various parts of the body and connected to each other by small channels called lymphatics. Lymph nodes are the stations where immune system cells, particularly lymphocytes, meet the potentially dangerous foreign agents and take steps to combat them.

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## **Lymphatic System**

Component of the immune system, which includes members present throughout the body, including the spleen, bone marrow, lymph nodes and lymph vessels.

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## **Lymphocytic leukemia**

Hematologic Neoplasia chronic course caused by the accumulation in the bone marrow and peripheral blood of apparently mature lymphocytes.

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## **Lymphoproliferative disorder**

Illness related to the cells of the lymphatic system.

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## **Magnetic resonance imaging (MRI)**

Diagnostic technique that uses magnetic fields instead of radiation to create a radiographic image; especially useful in neurological diseases, skeletal muscle, cardiovascular and oncology.

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## **Minerals (or minerals) (eg. Calcium, sodium, etc.)**

Substances present in the body in small amounts but essential for human life; minerals cannot be produced within our bodies, so we must obtain them from our diet. Mineral salts are particularly important for the processes of formation of teeth and bones, regulation of salt and water, growth and development of tissues and organs and processes that produce energy.

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## **Monoclonal gammopathy of undetermined significance (MGUS)**

Non-malignant disease in which there is a low level of M protein, but no other symptoms. Some cases may progress into myeloma.

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## **Myeloid cells**

Cells that are derived from hematopoietic stem cells, which are found in bone marrow, giving rise to red blood cells, certain white blood cells (granulocytes and monocytes) and platelets.

## **Myelodysplastic syndrome or myeloproliferative syndrome**

Hematologic disorder.

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## **Multiple Myeloma**

Neoplasia caused by the presence of plasma cells in the bone marrow. Cancerous plasma cells are called myeloma cells.

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## **Neoplasia**

Synonymous with cancer.

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## **Neuropathy**

Numbness, tingling and/or pain in the hands, feet, legs and/or arms to the pain caused by peripheral nerve injuries.

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## **Neutropenia**

Clinical condition characterized by an abnormal reduction in neutrophils (white blood cells) in the blood.

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## **Niacin (vitamin B3 or vitamin PP)**

Vitamin which plays a role in cellular respiration reactions, synthesis and degradation of amino acids, fatty acids and cholesterol. Its deficiency is the basis of pellagra, a widespread disease in the poorer areas of our country until the late 19th century and characterized by digestive tract disorders, nervous and mental disorders, and especially skin lesions.

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## **Nerve roots**

Initial nerve Party through the spinal cord.

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## **Nutrients**

All dietary substances used by the body to ensure normal development and to maintain good health. In relation to the requirements, we can distinguish between macronutrients (proteins, carbohydrates, fats) and micronutrients (vitamins and minerals), water and fibers are also added to this classification.

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## **Osteoblasts**

Cells responsible for bone formation.

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## **Osteoclasts**

Cells responsible for bone resorption.

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## **Osteoid**

Organic material (not mineral water) of the bone matrix.

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## **Osteolytic bone disease**

Bone lesion characterized by the complete destruction of a part or a whole bone, which can be determined by pathological processes of various kinds, such as bone inflammation, primitive or metastatic bone tumors, nerve diseases, endocrine diseases or as a result of traumatic injuries. When it is particularly extended it can result in a bone fracture also as a result of minimal trauma.

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## **Pathological fractures**

Fractures of the bones caused by a disease rather than a traumatic event.

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## **Paraprotein**

Or monoclonal immunoglobulin light chain immunoglobulin present in blood or urine, produced by plasma cells. In Waldenstrom macroglobulinemia (MW) the paraprotein is always of IgM subtype. In patients with MGUS-IgM they carry out regular tests of monoclonal paraprotein quantification to monitor the progression to overt MW.

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## **Performance status**

Measures of psychological well-being of a subject.

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## **Petechiae**

Small localized bleeding caused by the rupture of small blood vessels under the skin.

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## **Platelets**

Blood cells deputed to the clotting of blood itself.

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## **Peak M**

intense band in the region of the  $\gamma$  or  $\beta$  globulins in mapping protein electrophoresis of serum and urine (SPEP or UPEP) typical of a patient with myeloma, index of secretion of a large amount of monoclonal immunoglobulin (M protein).

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## **Plasma cell**

Also called plasmocita. An immune system cell that secretes large amounts of antibodies and is located in the bone marrow.

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## **Positron Emission Tomography (PET)**

Diagnostic technique that involves the intravenous administration of substances normally present in the body (such as glucose), but "marked" with radioactive molecules (radiopharmaceuticals) with the aim of detecting the distribution in the body of these substances. Because glucose is attracted by tumors, PET reveals the accumulation producing dark spots radiographic image. It is useful to confirm a diagnosis of cancer, in order to verify the presence of metastases or to determine the efficacy of a cancer therapy.

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## **Prevalence**

Measures relating to individuals in a population that, at any given time, have a certain disease.

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## **Prognosis**

Forecasting the likely course of the disease.

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## **Pro-vitamin A (carotenoids)**

Substance ingested through the diet which the body then converts into vitamin A.

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## **Protein M**

Protein present in the serum and/or urine of 98% of patients with multiple myeloma, whose identification and dosage is essential for the diagnosis and assessment of treatment success.

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## **Protein**

Molecules formed by chains of amino acids. They constitute an essential part of living organisms and perform multiple functions including structural roles.

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## **Radiography**

Diagnostic imaging technique which uses the X-ray ability to impress a photographic film in relation to the different density of the tissues that cross.

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## **Red blood cells**

Blood cells that contain hemoglobin, a protein that transports oxygen.

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## **Serum Lactate dehydrogenase**

Tumor load indicator that measures the concentration of LDH in the blood, an enzyme present in the cells of many tissues, released into the blood when the cells of these tissues are diseased.

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## **Septicemia**

Systemic inflammation caused by an infection of the body's blood.

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## **Sign**

Element that the doctor can observe (e.g. rash).

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## **Solitary plasmacytoma**

Type of myeloma in which the tumor has only one localization, bone or extramedullary.

## **Spleen**

Organ located in the upper left part of the abdomen and which, among other functions, 'filters' the blood, eliminating the 'waste' and destroying the old red blood or damaged cells. The enlargement of this organ is defined splenomegaly.

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## **Symptomatic**

Patient or disease with symptoms.

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## **Thrombocytopenia (or thrombocytopenia)**

Reduction, below the normal range, the number of platelets.

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## **Solid tumor**

Compact mass of tissue that grows from the liquid differentiating a tumor composed of cells in suspension.

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## **Staging**

Standardized method to define the size of the tumor and the extent to which it has spread.

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## **Thiamine (or vitamin B1)**

Vitamin required in carbohydrate metabolism and which promotes the general state of nutrition of the nerve tissue.

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## **Translocation**

Chromosomal abnormality caused by the exchange of material between two chromosomes.

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## **Thrombocytopenia**

Reduction in the number of platelets.

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## **Ultrasound**

diagnostic technique for images using ultrasound.

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## **Watch and wait**

Literally, a 'observe & wait' approach used by doctors on patients who do not need treatment. The doctor's role is to wait and monitor the progress of the disease over time by carrying out regular checks.

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## **White blood cells**

Blood cells that help the body fight infections. There are five types of white blood cells: neutrophils, eosinophils, basophils, monocytes and lymphocytes.

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## **Vertebral collapse**

Pathological condition in which the bones of the spine are crushed and are reduced in height. It can cause entrapment of the spinal cord.

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## **Vitamin C (or ascorbic acid)**

Vitamin that in addition to participating in numerous metabolic reactions and synthesis of collagen, of some amino acids and hormones, it is also an antioxidant and intervenes in allergic reactions by enhancing the immune response; it neutralizes free radicals and carries out a protective function at stomach level, inhibiting the production of carcinogens. Its deficiency causes a condition called scurvy.

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