**EVALUATION OF OXIDATIVE STRESS IN THE GRANULOMATOUS DISEASE**

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Background

Oxidative stress caused by oxidative metabolism can cause disturbances in normal cellular signaling mechanisms, but on the other hand, neutrophils and other phagocytes manufacture O2- (superoxide) for the purpose of killing invading microorganisms.

Chronic granulomatous disease (BGC) is a rare disease characterized by the inability of neutrophilic polymorphonuclear phagocytes to produce reactive oxygen species (ROS) is due to genetic mutations in the genes encoding the component subunits of NADPH oxidase.

Objectives

To study the PMN response, various methods have been developed that are based on the evaluation of the oxidative explosion, by measuring the intracellular production of ROS or the formation of ROS in the extracellular space.

Methods

The following methods are widely used because of their convenience and accuracy:

-The method depends on the reduction of cytochrome c, which can be evaluated by photometry

-The second method is based on changes in the fluorescence properties of dihydrodhodamine, which can be assessed by flow cytometry.

-NBT test - in detecting oxidative explosion in phagocytes Principle: NBT (nitrobluetetrazolium) is a yellow, water-soluble substance, phagocytosed by PMN and monocytes, then reduced intracellularly to formazane (dark blue to black) during oxidative explosion , under the action of reactive oxygen species (ROS) produced in phagocytes.

Conclusions

1. In the case of patients with a history of severe infections, after excluding more common diagnoses, it is necessary to check the immune status and in this context the existence of a BGC.
2. Although BGC is a rare disease, it may be underdiagnosed.
3. The NBT test is easy to perform and provides an indicative semi-quantitative assessment. The diagnosis of certainty requires confirmation by the Phagoburst test (quantitative assessment). Determination of genetic mutations in genes encoding NADPH oxidase subunits is the final diagnosis.