



Research Highlight

PROTEIN MALNUTRITION: AN INDIRECT IMMUNODEFICIENCY AGENT

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Mast cells are a type of white blood cells, which are present in connective tissues. These cells produce histamine as well as other protective substances during inflammatory and allergic reactions. They play a crucial role in host defense against several parasitic ailments of the intestine, in wound healing as well as scar formation in the skin. Moreover, they are also reported to promote tumor angiogenesis¹. Accordingly, mucosa mast cells are different from those present in connective tissue with respect to their morphology¹.

Protein Malnutrition (PM) is becoming a serious issue these days. It is considered as an indirect reason of immunodeficiency around the globe as it can cause amplified vulnerability to infection².

It is reported that protein-energy malnutrition is linked with a higher rate of infection, which may boost morbidity and mortality rate by harming host defense mechanisms and reduced phagocyte function as well³.

Considering this situation, a new study was carried out to investigate the impacts of different levels of protein deficiency on number of mast cells in rat small intestine. For

this purpose, scientists selected 24 male Wistar Albino rats having age of 20 days (immature group) and 24 rats with age of 65 days (mature group)⁴.

Afterwards, these rats were categorized into 6 experimental groups, each group with 8 animals. The tissue samples of the small intestine were then obtained by using deep anesthesia and fixed in Mota's fixative for 24 h by embedding in paraffin. Scientists then sliced the sections of 6 μm thickness and stained them with 0.5% toluidine blue in 0.5 N hydrochloric acid⁴ at pH 1 for 30 min.

The numbers of mast cells in small intestine tissues were found to be lesser in immature rats fed 3% crude protein diet in comparison with rats that were given 10% crude protein as well as a control group. However, in mature rats, the numbers of mast cells were similar among rats that were fed with 3% crude protein diet and control, but, fewer as compared to rats, subjected to 10% crude protein.

Conclusively, severe protein deficiency leads towards a declined number of mast cells in small intestine tissues of rats.

Key words:

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phagocyte function Wistar Albino Rats

crude protein

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