IMUNOTOXIC EFFECTS OF MICROCYSTIN-LR, -YR AND -LA IN HUMAN NEUTROPHILS

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Microcystins (MC) are cyclic heptapeptides mostly found in diverse water systems with cyanobacterial blooms. MC show potent hepatotoxicity and tumor-promoting activity though inhibition of protein phosphatases 1 and 2A. Neutrophil (PMN) infiltration in liver can extend this toxic injury. Therefore, the aim of the present study was to determine the imunotoxic effects of microcystin variants LA, YR and LR on human PMNs, *in vitro*. The influence of these MC on cell viability, DNA fragmentation, reactive oxygen species (ROS) and cytokines (IL-8 and TNF-a) production by human PMNs were investigated. Viability and DNA fragmentation were measured by flow cytometry; intracellular ROS were evaluated by using lucigenin-amplified chemiluminescence and released cytokines were determined by ELISA kits. The results demonstrated that the viability of human PMNs treated with MC-LR and MC-LA was increased, and that MC-LA, MC-YR and MC-LR induced an increase on ROS production and IL-8 release. These findings indicated that MC may lead to inappropriate activation of PMNs and tissue injury. Our results also show that human PMNs may mediate some of the toxic effects of MC.

Key words: cytokine, microcystin, neutrophil, reactive oxygen species, viability.

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