A SHRIMP HEPARIN-MIMETIC IS ABLE TO MAINTAIN ANTI-MIGRATORY EFFECT AFTER A LONGER TIME OF ACUTE PERITONITIS

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INTRODUCTION AND OBJECTIVES: It was previously demonstrated that a heparin-mimetic compound (HMC) isolated from Litopenaeus vannamei shrimp heads exhibited a significant anti-migratory effect during the first hours post inflammatory stimulus and a reduced anticoagulant response was also observed. Considering these data and the dynamic of inflammation, we asked in this study whether the inhibitory effect of HMC on the leukocyte trafficking into the peritoneum persists during a prolonged inflammatory response. MATERIAL AND METHODS: The HMC was isolated from L. vannamei heads as previously described. Its anti-inflammatory activity was evaluated after two times (3 and 6 hours) of inflammation induction, using a thioglycollate-induced peritonitis model in Swiss mice. The differential cell count method was applied to obtain the leukocyte percentage of the peritoneal fluid of all animals. Further, its anticoagulant activity was measured by aPTT assay. RESULTS AND DISCUSSION: At 3 hours of inflammation, all HMC dosages were able to reduce migratory flow. At 6 hours, the 1µg/Kg HMC dosage did not exhibit anticoagulant activity and it was able to reduce significantly the leukocyte recruitment into the peritoneal cavity. This recruitment was characterized mainly by the decrease of neutrophils influx, once this cell type is the first to migrate into the injury site and it shows a higher concentration peak at 6 hours of inflammation. On this peritonitis model, HMC was as efficient as Diclofenac, a reference commercial drug. CONCLUSION: HMC was able to reduce leukocyte recruitment for a longer time after injury induction (6 hours) showing an effect as efficient as presented in the first hours (3 hours) of acute inflammation. The observed HMC attributes can be an important step for new drugs’ development with considerable effects on inflammatory injuries and at the same time without a high risk of hemorrhage.

Key-words: Inflammation, Litopenaeus vannamei, Leukocytes.

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