Potential of PLA_2 Inhibitor (γCdcPLI) as Anti-inflammatory on Subcutaneous Sponge model

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Introduction. Some pathological conditions, such as inflammation and angiogenesis, are the key for maintenance diseases. In this context, the subcutaneous sponge implantation in mice induces a chronic inflammation environment, with migration, proliferation and activation of several inflammatory cells. The anti-inflammatory effects have been described for different compounds, especially PLA_2 inhibitor from snake serum. **Objective:** Thereby, we used a γ-type PLA_2 inhibitor (γCdcPLI), from *Crotalus durissus collilineatus* snake serum to evaluate its anti-inflammatory potential in subcutaneous sponge implantation model. **Methods:** We implanted polyether-polyurethane sponge discs, 5mm thick and 8 mm diameter, in male swiss mice 7-8 weeks. After 9 days of treatment with γCdcPLI (1,000, 100 and 10 ng/animal) and PBS as control, the sponge were gently excised and evaluated to assess vascularization and inflammation, such as hemoglobin content, cytokines levels (CBA technique), inflammatory markers myeloperoxidase / MPO and N-acetylβ-D-glucosaminidase / NAG), total collagen and histological analysis. **Discussion and Results:** γCdcPLI was capable to increase the hemoglobin level at 100 and 1,000 ng doses, indicating a vascularization process. About collagen total composition, the inhibitor treatment increased this deposition just in 100 and 10 ng doses, and the histological analysis evaluated under polarized light, showed this collagen deposition. The inhibitor did not show effect on MPO activity, indicating that inhibitor could not act on macrophage; however at 100 and 10 ng doses the inhibitor was capable to inhibit the neutrophil activity by decreasing NAG activity. Cytokines data showed that in sponge supernatant the levels of IL-6 and TNF-α decreased, this result corroborate with our result of nag activity inhibition. **Conclusion:** Thus, our results showed that PLA_2 inhibitor γCdcPLI isolated from the *C. durissus collilineatus* serum possesses anti inflammatory effect suggesting its potential use as model to design anti-inflammatory drugs.

Keywords: PLA_2 Inhibitor, Anti-inflammatory, snake serum.
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