

Slow release pentoxifylline and captopril could prevent delayed pulmonary complications of mustard gas in animal models

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Background and Aims: Considering the effect of pentoxifylline on the immune system and reducing oxidative stress and also the antioxidative properties of captopril, these drugs are indicated for prevention and treatment of delayed pulmonary complications due to exposure to sulfur mustard (SM). Therefore, we decided to study the effect of slow release pentoxifylline and captopril on SM-induced delayed pulmonary complications in animal models.

Methods: Pentoxifylline and captopril were administered for two weeks to mice exposed to sulfur mustard. Biochemical and pathological analyses included: hydroxyproline assay, alveolar space percentage and severity of inflammatory cell infiltration. The results were compared between groups using ANOVA statistical test.

Results: Hydroxyproline content of the lungs was significantly lower in the negative control group in comparison to positive control, captopril intervention and pentoxifylline intervention groups. There was no significant difference between groups in image analysis figures. However, there was a significant difference in extent of fibrosis, inflammation, and lymphocyte and PMN percentage between different groups.

Conclusions: Pentoxifylline only resulted in decreased pulmonary inflammation without any effects on other indices. On the other hand, increase in hydroxyproline content of the lung in the captopril group compared to controls showed that captopril had accelerated the process of fibrosis. Hence, more research is recommended to study the effect of captopril on pulmonary fibrosis.

Keywords: Pentoxifylline; Captopril; Sulfur mustard