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• **Evaluating of Relationship between Serum Levels of MMP-9 and TIMPs-MMP-9 complex and Ocular Injuries 20 years after Sulfur Mustard Exposure (Sardasht-Iran Cohort Study)**

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**Background:** Sulfur mustard (SM), is an alkylating agent which induces short and long term effect against various organs including the eyes but the damaging mechanisms have not clearly been defined. MMP-9 has been known as the gelatinase B, it is particularly important in the pathogenesis of inflammatory, infectious, and neoplastic disease including the eyes injuries. In the present study the relationship between serum levels of MMP-9 and TIMPs and ocular injuries induced by SM was evaluated. **Materials and Methods:** In this historical cohort study 372 male SM exposed subjects and 128 age matched unexposed controls were studied. A complete ophthalmologic assessment including ocular history, visual acuity changes, and ocular examination using Slit lamp biomicroscope was carried out for all participants. Final ophthalmologic assessments were recorded using the criteria verified by the Medical Committee of the Foundation of Martyr and Veterans Affairs. Serum concentration of MMP-9, TIMP-1, TIMP-2, TIMP-4 were measured by a sandwich ELISA technique using DuoSet ELISA Development kits. **Results and Conclusion:** The results show a significant difference between TIMP-1-MMP-9 complex of exposed participants who had slit lamp findings with those exposed who didn't have slit lamp findings. There were not significant differences between control and exposed group who had slit lamp findings.

**Keywords:** Sulfur Mustard, MMP-9, TIMP-1, TIMP-2, TIMP-4, ELISA