



Case Report

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## Inflammatory status of Non-Smoker Sulphur Mustard exposed Patient with Cancer candidate for Coronary artery bypass grafting Surgery

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### ABSTRACT

Sulphur mustard (SM) is a well-known chemical warfare agent. It was first used during World War I and more recently in the Iran/Iraq conflict causing more than 100,000 Iranian casualties. Previous study showed that this gas can raised inflammatory marker but in this current case that suffered from cancer. After examine current case for candidate CABG, we found that Hs-CRP and IL-6 was very low than the other and this result show that this patients have bad inflammatory status and need to more tests. Result of the inflammatory marker in this patient was very abnormal and showed unknown effect of Sulphur mustard on patient and need to more research on mustard gas mechanism on inflammatory markers.

**Keyword:** Mustard Gas, Cancer, inflammation, Cardiac Surgery

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### INTRODUCTION

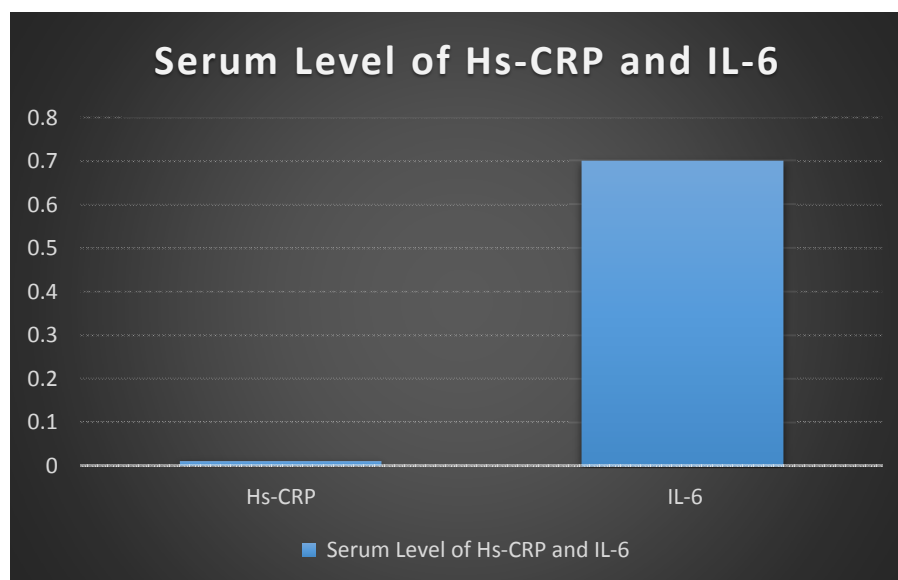
sulphur mustard (SM) is a well-known chemical warfare agent. It was first used during World War I and more recently in the Iran/Iraq conflict causing more than 100,000 Iranian casualties[1] Skin, eyes and lungs represent the three main target organs of SM. Chronic complications of sulphur mustard are frequent even 20 years after exposure. According to a survey on 34,000 veterans of the Iraq–Iran war, the prevalence of chronic pulmonary, ocular and cutaneous complications is 42.5%, 39.3% and 24.5%, respectively [2] Also, SM is an alkylating agent with cytotoxic, mutagenic, and vesicating properties. This gas can damage DNA and some study worked on carcinogenicity of Sulphur mustard and suggests carcinogenesis of SM following acute exposure during war and describe the carcinogenesis of the acute exposure to SM, which even with lowest level and least time of SM exposure, SM is a carcinogen agent, although we have not determined the most probable type of cancer related to it, yet [3]. In current years Sulphur Mustard Patients showed inflammatory response and systemic inflammations. Some of this patient involve with cardiovascular disease and after many treatment need to Coronary artery bypass grafting (CABG). The background of systemic inflammation in this patient is necessary to remember inflammatory changes during On Pump Coronary artery bypass grafting and need to monitoring inflammatory marker in this patient to detect different between this Chemical Patients and the other patient to reach strategy for better result after Coronary artery bypass grafting surgery[4].

**Case Report:**

Patient was male with 64 years old and exposed to Sulphur mustard 30 years before write this report. He had 73 Kg weight and 173 Cm height and AB+ Blood group. He suffered from Complication of Sulphur mustard and candidate for Coronary artery bypass grafting surgery. But he suffered from Cancer too. Before enter to surgery ward, he was examined for inflammatory problems and spirometer for lung function (Table 1 and figure 1). After spirometry and test marker with ELIZA technique we found that inflammatory markers high-sensitivity C-reactive protein (Hs-CRP) and interleukin 6 (IL-6) of this patient was 0.01 and 0.7 respectively and its not normal to our knowldeg about the level of this markers in this patient and this result was very lower than even healthy person!(In Comparison with reference range).

Patient Characterization	
Age	64
weight	73
height	173
Blood Group	AB+
Spirometry Result	
FEV1	83
FVC	75
FEV1/FVC	88
PEFR	64

Figure 1. Serum Level of Hs-CRP and IL-6

**DISCUSSION**

result of the inflammatory marker in this patient was very abnormal and showed unknown effect of Sulphur mustard on patient and need to more research on mustard gas mechanism on inflammatory markers. In previous study showed that this gas can raised inflammatory marker but in this current case that suffered from cancer we found that Hs-CRP and IL-6 was very low than the other and this result show that this patients have bad inflammatory status and need to more tests. We study this case for any problem during cardiac surgery because It is obviously evident regarding to cardiovascular dysfunction and postoperative pulmonary. Inflammation represents the response of the body to tissue injury and in normal circumstances is a controlled humoral and cellular response that will lead to control of infection and wound healing. In some instances this response may become exaggerated, ultimately leading to additional tissue injury and the development of organ dysfunction [5]. Current case doesn't continue to CABG and we refer he to immunologist.

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