

## **Evaluation of Carboxyhemoglobin in Ante Mortem and Postmortem Burns**

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**Introduction :** Differentiation of ante mortem from postmortem burns is very important especially in charred bodies. At the present there is no definite sign for this purpose, although a few criteria can be used as indicators of ante mortem burns such as presence of soot under vocal cord, carboxyhemoglobin level and vital reaction around burning areas.(1,2,3). The main purpose of this study was determination of carboxyhemoglobin which is the most important indicator of ante mortem burns in comparison of presence of soot in lower respiratory tract. **Methods :** In this study 47 charred bodies that referred to legal medicine organization of Tehran, Iran from 2005 to 2006 was evaluated. In according to history, autopsy findings and penal records bodies were divided to 3 groups: 1-Definite ante mortem burns (19 cases) 2- Definite postmortem burns (14 cases) 3- Undetermined burns (14 cases). Each group was evaluated for carboxyhemoglobin level and presence of soot in lower respiratory tract. The limit of detection of carboxyhemoglobin was 15%. **Results :** From 47 bodies, 44 cases (93.6%) were male and 3 cases were female. The mean (SD) of age was 28.3 (9.6) years old. Carboxyhemoglobin was positive in 42.1% of cases in group 1, none of the group 2 and 14.3% group3. Soot was seen in lower respiratory tract of all of bodies in group 1, none of the cases in group 2 and 57.1% of group 3. **Conclusions :** As the carboxyhemoglobin was positive in some of the ante mortem burns and was negative in all of the postmortem burns, we can result that carboxyhemoglobin can be used as a definite finding for ante mortem burns, but negative carboxyhemoglobin doesn't mean a postmortem burn. Therefore for distinguish ante mortem from postmortem burns we should use other findings beside of carboxyhemoglobin. **References :** 1. Hashimoto Y, Moriya F, et al. Intramuscular bleeding of the tongue in the victims of house fire. *Legal Medicine* 2003; 5: S328 - S331. 2. Darren P, John E . Carboxyhemoglobin Levels in a Series of Automobile Fires: Death Due to Crash or Fire? *American Journal of Forensic Medicine & Pathology*1996; 17(2):117-123. 3. Turrina S, Neri C, et al. Effect of combined exposure to carbon monoxide and cyanides in selected forensic cases.*Journal of Clinical Forensic Medicine* 2004; 11(5): 264 - 267.