

Comparison of Postmortem Heart and Femoral Blood Ethanol Concentrations

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Introduction : Alcohol abuse is a major cause of medical and social problems and ethanol analysis is the most frequently performed assay in forensic toxicology laboratories(1). Femoral venous blood (FVB) is the usual specimen provided for ethanol analysis but sometimes femoral blood is unavailable, otherwise some factor such as .putrefaction and alcohol diffusion from gastric residue to heart blood (HB) can affect on ethanol concentration(2,3,4). The aim of this study was comparison of postmortem FVB and HB in determination of ethanol concentration. **Methods :** Ethanol concentrations were determined in FVB and HB obtained from 50 forensic necropsies that the time of death was less than 24h. The specimens were storied in 4 ° C with preservative and analyzed in duplicate by headspace gas chromatography (HS-GC) in Legal Medicine Organization Forensic Laboratory Of Tehran with a precision (coefficient Of variation 5%- 7%). The limit of detection (LOD) was 1mg/dL and the limit of quantification (LOQ) was 10mg/dL. **Results :** we found the mean \pm SD of ethanol concentration in HB was 131.88 \pm 93.48 mg/dL and in FVB was 135.96 \pm 95.47 mg/dL. The heart blood/femoral blood ethanol concentration ratio was 0.958 \pm .1764 and Pearson correlation coefficient between them was 0.98. When considered specimens with concentrate \leq 100 mg/dL ,Pearson correlation coefficient was 0.859 and in other specimens with ethanol concentration >100 mg/dLl was 0.943 . **Conclusion :** The results showed that there was no large considerable difference between FVB and HB alcohol concentration if the death was happened before 24h and sampling and storage was correct and appropriate that this agrees well with other investigations. **References :** 1. Bilban.M,Skibin.L .Presence of alcohol in suicide victims.Forensic Sci In2005;147;S9-S12. 2. Kallirroe Z,Vassiliki A.Insights into the origin of postmortem ethanol.International Journal Of Toxicology2005;24:69- 77. 3. Fredrik C, Kugelberg Alan, wayne J.Interpreting results of ethanol analysis in postmortem specimens.Forensic Science International 2007; 165:10-29. 4. DE Martinis BS,De Paula CMC,et al.Alcohol distribution in different postmortem body fluids. Human and Experimental Toxicol.2006; 25:93-7.