Drug concentrations in postmortem blood samples can differ considerably, depending on the sample site – a phenomenon named postmortem redistribution" Zilg et al (2017).

Abstract:

Drug concentrations in postmortem blood samples can differ considerably, depending on the sample site – a phenomenon named postmortem redistribution. In this study, blood samples from 48 cases of suspected intoxications were collected during autopsy at the Department of Forensic Medicine in Stockholm, Sweden.

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Samples were collected from the right and left heart, the carotid artery, jugular vein, external iliac artery and external iliac vein. The mean ratio of right heart/iliac vein was 1.3, which confirms the results from previous studies that drug concentrations in central blood are generally higher than in peripheral blood. The mean ratio of the ext iliac artery/ext iliac vein and the ratio of the carotid artery/jugular vein were 1.3 and 1.4, respectively, suggesting that drug concentrations are higher in arterial than in venous blood. Drugs with a low volume of distribution had a lower ratio of central/peripheral blood than drugs with a high volume of distribution (1.2 vs 1.4) and also a lower ratio of arterial/venous blood (1.3 vs 1.4). In cases

with a short postmortem interval (PMI) there were no significant concentration differences in central and peripheral blood, but in cases with medium and long PMI, the ratios increased (1.2 and 1.4). Cases with a long PMI had an arterial/venous concentration ratio of 2.0. The results suggest that postmortem blood sampling should be performed as soon as possible after death and that peripheral venous blood, if available, should be used for analysis.

Reference:

Zilg, B., Thelander, G., Giebe, B. and Druid, H. (2017) Postmortem blood sampling-comparison of drug concentrations at different sample sites. Forensic Science International. July 25th. .

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