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P7. POSTMORTEM REDISTRIBUTION AND INTERPRETATION OF BLOOD CONCENTRATIONS

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One of the most difficult responsibilities of the forensic toxicologist is the interpretation of postmortem drug levels (therapeutic, toxic, or lethal). The drug levels are generally assessed in the light of the blood concentration. Postmortem redistribution (PMR) is one of many factors (hydrolysis, bacterial activity, blood coagulation and hypostasis or movement of the cadaver before sampling) that may lead to changes in drug concentrations after death. As the interval between death and collection of blood samples becomes longer, drugs from tissues and organs that contain high drug concentrations redistribute due to cadaver decomposition. Thus, drug concentrations increase in the blood. Mechanisms of PMR may also be affected by a particular drug's characteristics, such as lipophilicity, volume of distribution, and pH status (acidic, basic, or neutral). For example, basic, highly lipophilic drugs with a volume of distribution greater than 3 L/kg are particularly susceptible to PMR. Although the presence of PMR is a well-recognized phenomenon in forensic toxicology, it is still under-explored and systematic studies on PMR are rare. For most drugs, femoral blood is regarded as the optimal sample for interpretation based on its greater distance from organs that may be influenced by PMR mechanisms. However, blood samples taken from different sites such as heart blood, femoral, iliac or subclavian blood, head or hematoma blood should be clearly identified on test tubes and blood from different sites should never be combined. This is very important to interpretation of blood concentrations.

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