

Preservation of blood, Urine

Blood:-

→ Postmortem Blood specimens are collected from new [hypodermic needle or syringe].

→ Sites:- heart and peripheral.

→ No autopsy - Peri, ans - both.

→ In suspected poisoning death or in unknown cases, femoral blood specimen should be collected. [20 ml of blood is sufficient].

→ Preserved in Sodium fluoride [NaF]

* add 10ml NaF to the collection container.

* It inhibits micro-organismic or chemical change.

0.1 mg/ml → mercuric chloride.

* Anticoagulant - ① Potassium oxalate.

30 mg/6ml.

② EDTA

③ Sodium citrate 5 mg/ml

one without preservative - less stable compound

in the container.

⇒ Once collected, blood specimens should be stored in tightly sealed container at low temp. [4°K].

→ The low temp. inhibit bacterial growth.

→ A generally slow rxn kinetics such as conversion of ethanol to acetaldehyde

or degradation of drugs like cocaine present in the blood.

→ These specimens should be stored sealed at 4°C until testing is completed & then frozen at -20°C if long term storage is required.

→ Peripheral blood specimens are usually obtained from the femoral vein.

→ Leg veins are preferred to veins of the head & neck due to the anatomical presence of a large no. of valves that resist blood movement from the intestines.

→ If blood clots, then it should be collected in case of head trauma.

* Heart - to obtain a proper cardiac specimen, the pericardial sack must be opened, the pericardium removed, the heart is dried & blood specimen is removed by syringe.

* Blood from the right chamber is preferable.

⇒ Many a times, blood specimens tend to be contaminated by & contain a large no. of microbes.

→ Additional contamination, from gastric contents is also possible.

→ Thoracic & abdominal cavity blood should be called for analysis only if blood or uncontaminated blood cannot be collected from

BDTA - ethylenediaminetetraacetic acid any other area.

② Urine:-

- During autopsy, urine specimens should be taken directly from the bladder by insertion of clean/new hypodermic needle into bladder.
- For non-autopsied cases, needle may be inserted directly through the lower abdominal wall, just above pubic symphysis.
[100 ml of urine should be collected].
- If the bladder is empty, then urine should be aspirated from the bladder & ureter.
- Bladder washings using a minimum amount of clean water would be desirable in the absence of any urine.
[Using suction power to draw something out of the body - aspirate].

① Urine specimen is of great value even in small amount especially in screening of unknown drug & poisons, particularly substance of ~~abuse~~ ^{abuse} since the concⁿ are generally higher than in blood & a no. of metabolites may also present.

✓ Urine specimens are also valuable in the quantitative analysis of alcohol, where there is uncertainty over the validity of a blood specimen.

⇒ 1 ml of conc. HCl or 100 mg of ~~thym~~ thymol or 100 mg of NaF can be used for 10 ml urine as a preservative.

* The urine matrix is generally devoid of circulating serum, proteins, lipids, & other related large molecular weight compounds due to the renal filtration process. Simplifying preparation of the specimen for analysis. The accumulation of drugs & metabolites in urine results in relatively high drug concⁿ facilitating detection of an exposure to a potential poison.

⇒ A sample of 20 ml is sufficient for toxicological analysis.

It has to be preserved in NaF (10 mg/ml) in 30 ml glass container with a screw cap.