

Effects of Blood Collection Site on Data in Mice

Have you wondered if the data is changed by the blood collection site in a mouse? Below is a simple summary outline with references and embedded hyperlinks.

SURVIVAL PROCEDURES

Retro-orbital

- Glucose values higher than with other techniques (stressful?) (1,3)
- Glucose value no different that with submandibular (8)
- Has lower levels of AST, ALT, protein, albumin, triglycerides, total cholesterol, creatinine than submandibular (1)
- Had higher total WBC count than intra-cardiac, but less than tail snip (2)
- Few hemolyzed samples (3)
- Best for animals with coagulation disorders (8)

Submandibular

- Has higher levels of AST, ALT, protein, albumin, triglycerides, total cholesterol, creatinine than retro-orbital (1)
- Do not use for animals with coagulation disorders (8)
- Platelet counts are lower than with the retro-orbital method (8)

Lateral saphenous

- Had total WBC higher than tail snip collection (5)
- For serial sampling in a short period of time (4X 30 min. apart) it had less hemolysis and glucose elevation that tail nick. (6)
- Results may depend on handler's technique (5)

Tail snip

- Had higher total WBC count than retro-orbital or intra-cardiac (2)
- Had total WBC lower than lateral saphenous vein collection (5)
- RBC data similar to saphenous vein (5)

Tail tip puncture

- Least effect on blood glucose, but more hemolysis (3)

Tail nick with sharp scalpel blade

- Few hemolyzed samples (3)
- Good for blood glucose (3)
- Has small effect on blood glucose levels, but little hemolysis (3)
- Blood glucose increases with serial samples in a short time (6)
- Little stress or effect on corticosterone (7)

NON-SURVIVAL PROCEDURES

Intra-cardiac

- Had lower total WBC count than intra-cardiac and tail snip (2)
- Little variation in blood chemistry (4)

Caudal vena cava

- Least variation in blood chemistries (4)

Caudal vena cava with extravasated abdominal blood

- Large variation in blood chemistries (4)

Remember that the skill of the animal handler and anesthetic use may also affect data. Also use the same blood collection site for the course of the study.

The different sites and methods for blood collection are easily found. Some very useful guidance is the NIH ARAC Guideline found at http://oacu.od.nih.gov/ARAC/documents/Rodent_Bleeding.pdf

References:

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