

**Title:**

Telemetric direct arterial blood pressure monitoring in the anesthetized and post-operative critical care patient.

**Investigators:**

This study is being conducted as a large multi-center study at university and referral hospitals across the country. The UGA investigators are:

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**Study description:**

Blood pressure monitoring is vital to care of the critical patient, allowing early identification and intervention in hypertensive or hypotensive patients and preventing consequences such as shock, organ failure, and death. Current methods for measuring blood pressure are problematic and error-prone, especially in hypotensive patients. Direct arterial blood pressure monitoring is the most accurate but requires peripheral arterial catheterization and is accompanied by such risks as inflammation, infection, thrombosis and exsanguination. Additionally, percutaneous direct arterial catheterization is rarely possible in critical hypotensive patients. Indirect methods are more available but are less reliable and require greater amounts of time to obtain the data. Erroneous measurements make it difficult to assess therapeutic response and may lead to inappropriate treatment or compromise patient outcome.

Recent advances in blood pressure monitoring techniques have produced small implantable telemetric direct arterial blood pressure monitoring devices. The objectives of this study are to assess ease of use, reliability, and complications associated with telemetric blood pressure monitoring in critical patients. Dogs undergoing major intrathoracic or intra-abdominal surgery for diagnostic or therapeutic purposes will have the telemetric device implanted in an artery over the medial aspect of a stifle. Telemetric blood pressures will be compared to blood pressures obtained from standard direct and indirect methods.

**Inclusion criteria** include all of the following:

1. Dogs weighing greater than or equal to 7 kg.
2. Undergoing anesthesia for diagnostics or treatment of their underlying disease
3. Dogs must be expected to live and be hospitalized for  $\geq 48$  hours.
4. As a result of the underlying disease process, the dog must be hypotensive or have a high likelihood of hypotension during anesthesia or in the post-operative period. Examples of qualifying procedures include but is not limited to abdominal exploration, thoracotomy, gastric dilatation and volvulus, biliary obstruction, patent ductus arteriosus, portosystemic shunt, and pyothorax.
5. Client consent

**Duration of study:**

The study will last as long as it takes to accrue 12 patients, or approximately 1 year.

**Potential benefits to veterinary medicine:**

Demonstrating that the telemetric device is accurate, time-saving, and safe for use in the critical patient will allow clinicians to optimize blood pressure monitoring and optimize case management. This information could reduce the risk of multiple organ failure and be life-saving for critical patients.