Clinical applications for pressure infusion bags

A pressure infusion bag is a specially designed cuff and bladder device used to pressurize sterile parenteral fluids (e.g. blood, IV solutions) to provide for rapid infusion into patients suffering from hypovolemia and its complications.

Parenteral fluids are usually packaged in flexible IV bags with a 500cc,1000cc and 3000cc volume. In order to pressurize them, they are inserted into the cuff of the pressure infusion device. Then the bladder is inflated to 300 mmHg with a hand pump, similar to that of a blood pressure cuff apparatus, putting pressure on the contents of the IV bag. The pressure causes the fluid to be infused more quickly into the patient. In addition, a valve is used to control the airflow through the bladder, optimizing the pressure on the IV bag by increasing or decreasing the air inside the bladder.

The two main clinical applications for pressure infusion bags are:
- Rapid infusion of blood, blood products, blood expanders, and IV solutions;
- Invasive pressure monitoring procedures.

The pressure infusion bag was originally designed to decrease the infusion time required to deliver blood. Gravity-fed blood can take up to an hour for delivery to the patient, while with the use of the pressure infusion bag the blood can be infused in seconds.

The pressure infusion bag has also become a necessary component of invasive pressure monitoring procedures. Intra-arterial pressure monitoring and Swan-Ganz catheterization monitoring both require the use of a pressurized plumbing system to retard the retrograde flow of blood and to keep the indwelling catheter patent. The infusor is used to pressurize a bag of heparinized saline to a pressure greater than the patient's highest systolic blood pressure, typically 300 mmHg.

The pressurized solution prevents retrograde blood flow into the catheter and plumbing; the heparin prevents blood clotting on the catheter tip. The system is activated by a flush valve which regulates the flow of solution into the patient at usually 24 mls/hr. The flush valve also allows for rapid flushing when needed.

Typically procedures benefiting from the use of pressure infusion bags are performed in the OR, ER, Trauma unit, ICU, and in post-anesthesia care.

Tapmedic llc
7751 Belfort Parkway, Ste 200
Jacksonville, FL 32256 USA
tapmedic.com