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CORRESPONDENCE

Blood Pressure Measurements and Intravenous Infusions: A Simple Clamp to Prevent Retrograde Blood Flow

To the Editor — Intravenous access for administration of drugs is essential for patient care during the intraoperative period. When a catheter is inserted into a vein or an arm with noninvasive blood pressure monitoring, retrograde blood flow in the infusion set may occur whenever the blood pressure cuff inflates (especially in patients with A-V shunts). Wait reported that this problem can be avoided or reduced simply by routing the proximal infusion tubing through the blood pressure cuff so that it is sandwiched between the velcro layers. When the cuff inflates, the tubing is squashed flat and is occluded, and retrograde flow is automatically prevented. However, this simple method often does not work because the low compliance of the tubing in most of the infusion sets does not allow easy compressibility.

We developed a simple and more effective method to solve the problem: Insert a modified squeeze-clamp into the portion of the intravenous tubing that is to be placed between the velcro layers (fig. 1). The ordinary squeeze-clamp is modified by shortening both free ends to avoid locking. The rims of tubing channels are cut on one side to allow introduction of the intravenous tubing into the clamp. When the intravenous tubing with clamp inserted is placed between the velcro layers, the occlusion-deflation cycle of the tubing occurs synchronously with the blood pressure cuff inflation-deflation cycle (fig. 2). The squeeze-clamp is easily available and can be found in the “Lipid-Resistant Winged Core-Resistant Needle Set” (Marquette Medical, Millersville, MD), the “Lucer Lock Extension Set 3-Way With Injection Site” (Codman Medllon, Glenoaks, Burbank, CA), and “Male/Female Luer Lock Extension set” (Marquette Medical, Millersville, MD). We have used this clamp extensively in patients not only with A-V shunts, but also in patients undergoing mastectomy, and various orthopedic or neurosurgical procedures in the arm. We have found this clamp to be easy to use and effective in stopping the retrograde flow every time the blood pressure cuff is inflated. The clamp is reusable and does not need sterilization. It is probably less expensive than a commercial infusion set with check valve.

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Reference


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