



e-Network Forum

CALIFORNIA BLOOD BANK SOCIETY

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Maintaining patency of intravenous lines between repeated therapeutic hemapheresis procedures

A blood bank physician in New Mexico wrote that preventing line clotting and maintaining patency of catheters used for therapeutic hemapheresis is usually accomplished by 'packing' the catheter with a heparin flush (heparin prevents clotting within the catheter for several days).

However, **concerns over heparin-induced thrombocytopenia (HIT)** has made many individual practitioners cautious about using a heparin flush to maintain line patency. One option is to use a **saline flush** of the line, every 8 hours, for patients in the ICU. However, a q8 hour saline flush is not very convenient for an outpatient or for a patient on a hospital ward (large catheters are not accessed routinely by ward nurses). Some practitioners use a **citrate solution** to maintain line patency, but the inquiring blood banker is not aware of studies on the efficacy of this solution in keeping such lines patent. He has heard 'through the grapevine' that a dialysis center in Texas routinely maintains line patency using only saline by clamping the tubing before the flush syringe is removed. He also has heard about a **positive pressure line cap** that is said to prevent back-flow, thereby preventing line clots, but he has never seen any published reports on this. The inquiring blood banker is hoping to learn what others do to keep IV lines patent between therapeutic hemapheresis procedures.

In response to the question, the following replies were submitted:

1. **A blood banker in Northern California** reports that their approach almost always has been to use a 1:1000 heparin solution to "flush" each port, as per the recommendations of the central venous catheter manufacturers whom they have contacted. When they suspect HIT, they immediately switch to saline flushes.

ADDENDA May 29, 2002

2. **A blood banker in Minnesota** reports that at his university medical center, in order to keep apheresis central line catheters patent, the nursing policy is to flush/insert DAILY 3 ml of a 1:1000 unit per mL heparin solution. (**Editor's note:** The responding Minnesotan did not comment on what they do if the patient has or has had **HIT**).
3. **A blood banker in Southern California** reports that her hospital uses heparin flushes according to the instructions of the catheter manufacturer, unless they expect HIT (which has not happened in the last year). If HIT is expected, a switch to saline flushes would likely be her first choice. However, she is interested to read the discussion on citrate, suggested by the inquiring blood banker.

ADDENDA June 8, 2002

4. **A nurse who is very experienced** in performing therapeutic hemapheresis procedures comments that the procedure followed by her staff is to use **1 ml of 5000u/ml Heparin plus Normal Saline to match the dwelling volume of each catheter port**. Most catheters require 1.2 ml or 1.3 ml, with newer catheters having the amount written on them. The responding nurse attended the recent 2002 **ASFA** meeting, where she heard more than one institution report that they use **TriSodium Citrate** (without any heparin) to maintain patency of catheters for TTP patients. No specific dose was mentioned. The responding nurse says that they recently had a patient with TTP, and the attending physician insisted on not using any heparin to maintain the catheter patency, and insisted on using just **Normal Saline 'TKO'** to keep the catheter open. (TKO = to keep open).

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