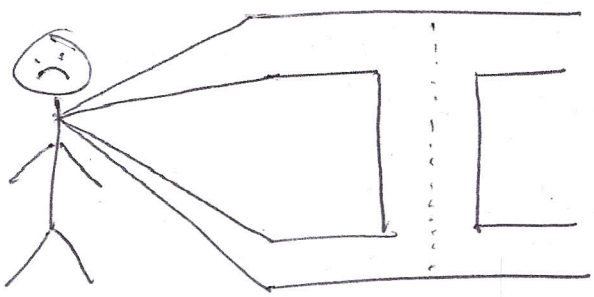
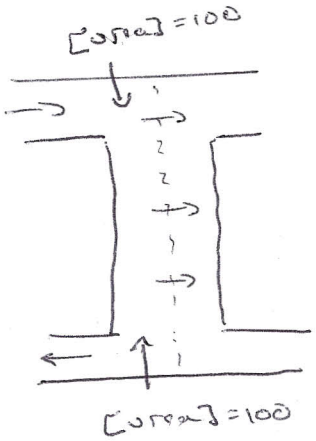
CVVH explained

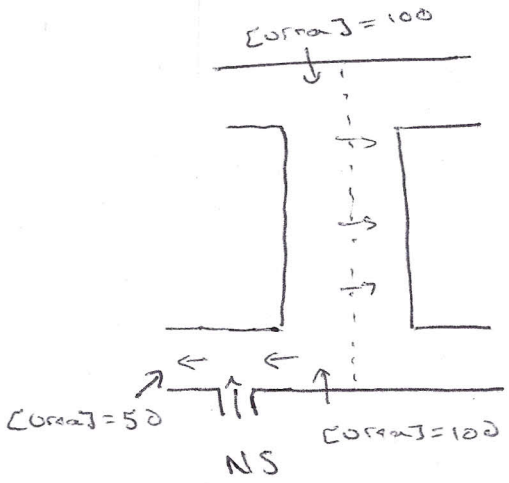


Instead of diffusion, CVVH relies on filtration

Solute and fluid move together



Because solute and fluid move together the result at the end of the system is less volume & the same concentration of solute



But fluid & solute (i.e. NS) is readded to the blood as it leaves the system, thereby increasing the volume back to prior levels and diluting the concentration of solute

CVVHD: when you add a diasylate

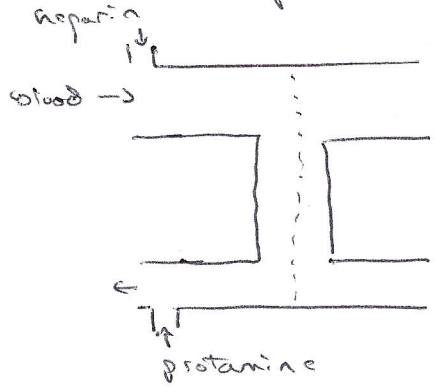
CVVHDF: when you add a transmembrane pressure to remove fluid

Blood Flow

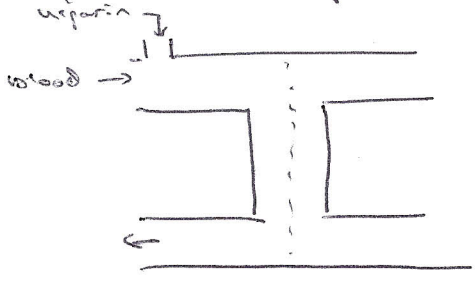
Blood flow rate is typically ~150 ml/min without a lot of room for change

At this rate how do we keep blood from clotting

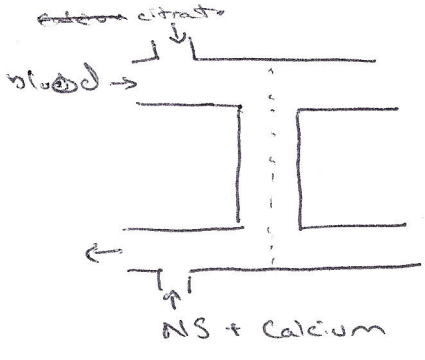
① Local Heparin



② Systemic Heparin



③ Calcium Citrate



calcium is needed for the coagulation cascade. citrate binds calcium in blood. Lost calcium must be replaced before blood reenters the body. Citrate in the body is converted to bicarb by the liver

Goal: $\frac{\text{total Ca}}{\text{Ca}_i} > 2.5$

Hints

* Residents replace K, Phos, Mag, but the renal fellow controls Calcium
* Patients on CVVH are hypothermic and may not spike fevers when infected