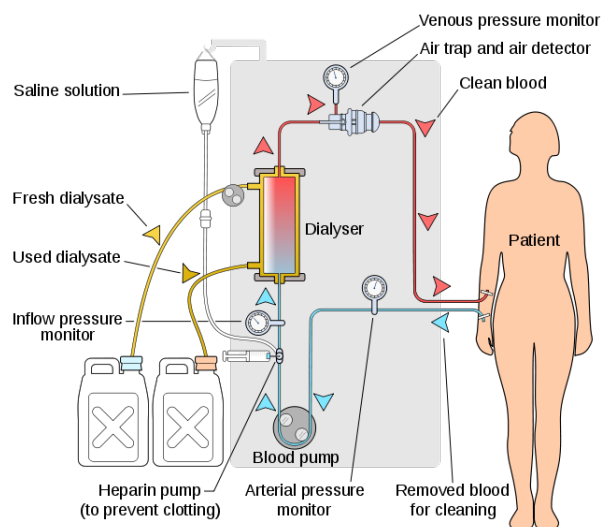


Effect of dialysate temperature on hypotension incidence

In medicine, dialysis (from Greek dialysis, meaning dissolution, dia, meaning through, and lysis, meaning loosening or splitting) is a process for removing waste and excess water from the blood, and is used primarily to provide an artificial replacement for lost kidney function in people with renal failure. Dialysis may be used for those with an acute disturbance in kidney function (acute kidney injury, previously acute renal failure), or progressive but chronically worsening kidney function a state known as chronic kidney disease stage 5 (previously chronic renal failure or end-stage kidney disease). The latter form may develop over months or years, but in contrast to acute kidney injury is not usually reversible, and dialysis is regarded as a "holding measure" until a renal transplant can be performed, or sometimes as the only supportive measure in those for whom a transplant would be inappropriate. ¹



One fairly common and potentially dangerous side effect (or adverse event) that can occur during dialysis is emphyhypotension, which is a drop in blood pressure. Nephrologists (kidney specialists) hypothesized that this drop in blood pressure might possibly be due to a decrease in internal body temperature arising from the cooling effect of the dialysis fluid (dialysate) on the blood before it is re-circulated into the body. To test this hypothesis they conducted a *cross-over study*. Consenting dialysis patients were randomized into two groups (in a blind fashion). From the beginning of the study one group was treated with warmed dialysate, the other with room temperature dialysate. Half-way through the study, the groups switched their temperature assignment.

During the dialysis session, blood pressure (systolic/diastolic) was recorded once per hour up to 4 hours. In addition, subjects were monitored for the occurrence of a sudden drop in blood pressure, signalling hypotension. This occurrence along with the blood pressure levels taken at the time of the episode was recorded. The investigators want to conduct an appropriate analysis to see if

¹<http://en.wikipedia.org/wiki/Dialysis>

temperature had an effect on the incidence of hypotension and also if temperature had any effect on blood pressure at all.

Based on the collected data, the investigators wish to answer the following questions?

- How is blood pressure altered following the initiation of dialysis in the warm and cool dialysis groups?
- What is the incidence of hypotension under both conditions?
- Is there any evidence that warming the dialysate alters blood pressures during dialysis or reduces hypotension relative to the standard protocol?