

Plasma Exchange Treatment Is Not Effective in Treating Acute Kidney Failure Caused by Multiple Myeloma

Summaries for Patients are a service provided by *Annals* to help patients better understand the complicated and often mystifying language of modern medicine.

The full report is titled "Plasma Exchange When Myeloma Presents as Acute Renal Failure. A Randomized, Controlled Trial." It is in the 6 December 2005 issue of *Annals of Internal Medicine* (volume 143, pages 777-784).

The authors are W.F. Clark, A.K. Stewart, G.A. Rock, M. Sternbach, D.M. Sutton, B.J. Barrett, A.P. Heidenheim, A.X. Garg, D.N. Churchill, and the Canadian Apheresis Group.

What is the problem and what is known about it so far?

Multiple myeloma is a type of cancer that causes overgrowth of abnormal (malignant) cells in the bone marrow. These malignant cells release a large amount of abnormal protein (myeloma protein) into the bloodstream. Myeloma protein can be removed by the kidney and can be excreted in the urine. Unfortunately, the kidney often becomes blocked by large amounts of myeloma protein, and kidney function often deteriorates by the time that multiple myeloma is first diagnosed. Doctors have tried to prevent further deterioration of kidney function by performing a procedure called plasma exchange. Plasma exchange is done by removing blood from a vein and then separating the liquid portion of the blood (the plasma) from the red blood cells. The patient's plasma (which contains myeloma protein) is then discarded and is replaced with plasma from healthy donors before returning it to the patient's bloodstream. Plasma exchange is now recommended by 2 large medical organizations.

Why did the researchers do this particular study?

To find out whether plasma exchange could help patients with multiple myeloma whose kidneys had already been damaged by myeloma protein and, specifically, whether plasma exchange could reduce the incidence of progressive kidney failure, the need for long-term kidney dialysis, or death in these patients.

Who was studied?

97 patients with newly diagnosed multiple myeloma and worsening acute kidney function.

How was the study done?

The researchers treated all patients for multiple myeloma but also divided them randomly (by chance alone) into 2 groups: One group received plasma exchange therapy, and the other group did not. The researchers evaluated both groups over the next 6 months to see whether they developed severe kidney failure, required long-term dialysis, or died.

What did the researchers find?

After 6 months, one third of patients in each group had died. Seventy percent of patients in the group that did not receive plasma exchange and 58% of the patients who received plasma exchange had a bad outcome (developed severe kidney failure, required long-term dialysis, or died). However, the researchers found that even this difference could have happened by chance alone. In other words, treating these patients with plasma exchange had no clinically significant advantage.

What are the limitations of the study?

The number of patients in the study was relatively small. Although this study did not show any advantage to treatment with plasma exchange, the researchers could not be sure whether certain types of patients within the treatment group might have been either helped or harmed by plasma exchange.

What are the implications of the study?

The previous recommendations to treat patients with multiple myeloma who have acute worsening of kidney function with plasma exchange must be questioned since this treatment does not seem to have any beneficial effect.

Summaries for Patients are presented for informational purposes only. These summaries are not a substitute for advice from your own medical provider. If you have questions about this material, or need medical advice about your own health or situation, please contact your physician. The summaries may be reproduced for not-for-profit educational purposes only. Any other uses must be approved by the American College of Physicians.