LETTERS TO THE EDITOR

Renal Protection: What Should We Aim For?

To the Editor:

The article by Cogliati et al focuses on a subject not completely understood that carries high morbidity and mortality. Several drugs and techniques have been used to prevent renal dysfunction after cardiac surgery. Similar strategies repeatedly have been used in other critical care patients. The different studies have failed to show robust positive results. Cogliati et al used fenoldopam as a possible renoprotective agent, with positive findings in the fenoldopam-treated group. However, other studies have not found beneficial effects with the same drug in cardiac and noncardiac patients. Fenoldopam works by vasodilating renal blood vessels, thus increasing renal blood flow. Renal blood flow, contrary to many beliefs, is increased during cardiopulmonary bypass. We do not know, however, if the increases in flow go to the cortex or the medulla. Normally renal flow goes predominantly to the cortex and there is no reason to think that the increase of flow produced by fenoldopam is diverted to other areas, specifically the medulla, within the kidney.

Oxygen consumption is higher in the medulla and unless the flow can be redirected to this portion of the kidney, all the high oxygen consumption metabolic processes will occur without changes; ischemic insults of any kind (low blood pressure, low cardiac output, nephrotoxic drugs) affect this portion more than any other. This complex situation may explain, in part, why vasodilating agents have not shown beneficial effects in all patients.

Renoprotective drugs or techniques have been difficult to find, and this may be because we are choosing the wrong method of protection. The goal has been to use a drug that can keep the renal function normal. A new hypothesis is to find a drug that may, as in other organs (the heart and brain), reduce the metabolic processes in the medulla, allowing the kidney to “preserve function” by reducing the oxygen consumption; in that case, it would not be necessary to vasodilate the renal blood vessels. Normal flow would be enough to meet all requirements. If this is the case, then we should not use normal renal function tests as early outcome measures in this situation; other cellular markers will be needed to assess renal protection.

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REFERENCES
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Reply: Is Fenoldopam the Magic Bullet?

To the Editor:

We agree with Lema et al that acute kidney injury after cardiac surgery carries high morbidity and mortality risk. Fenoldopam is the only drug that showed beneficial effects in critically ill patients with or at risk for acute renal failure; a meta-analysis of