Correspondence

NSAIDs

To the Editor:
I was interested to read the editorial by Code[1] on the use of NSAIDs in postoperative pain but I believe the effects of these drugs on renal function in the perioperative period was understated. The reference from Goodman and Gilman reflects primarily the general medical experience with these drugs when renal dysfunction is relatively rare except in the disease states listed where renal perfusion is dependent on the vasodilatory actions of prostaglandins. The situation in patients undergoing major surgery is different.

However healthy are our patients preoperatively and however well they are managed intraoperatively, many will be subjected to the neuro-humoural stress response to surgery involving the release of catecholamines, renin, angiotension and vasopressin (anti-diuretic hormone) which attain levels similar to those found in morbid disease states such as congestive heart disease or cirrhosis of the liver. Under normal circumstances these vasoconstrictor hormones stimulate the release of vasodilatory prostaglandins from the vascular endothelium of the afferent renal arteries and thus protect the kidneys from ischaemic injury. However, NSAIDs block the synthesis of these compounds[2] in patients undergoing oesophagogastrectomy. The importance of this effect was further demonstrated by Perttunen *et al*[2] who compared diclofenac infusion with placebo in fluid restricted post-thoracotomy patients. Their control group passed a meagre average of 230 ml of urine in the first 24 hr after surgery whereas the diclofenac group passed only 41 ml. Some consolation can perhaps be drawn from the finding in both of these studies that the effect was substantially less in the second 24 hr period suggesting that this is perhaps the time to be introducing this potent class of medication.

It is vital that we recognise the extent to which we stress the kidneys during and after major surgery and that we be circumspect in our decision to discard the protective mechanism that nature has deemed necessary to bestow upon these vulnerable organs.

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REFERENCES
1 *Code W.* NSAIDS and balanced analgesia. Can J Anaesth 1993; 40: 401-5.
2 *Power I, Cumming AD, Pugh GC.* Effect of diclofenac on renal function and prostacyclin generation after surgery. Br J Anaesth 1992; 69: 451-6.
3 *Perttunen K, Kalso E, Heinonen J, Salo J.* IV diclofenac in post-thoracotomy pain. Anaesth 1992; 68: 474-80.

REPLY

Thank you for your letter regarding my editorial "NSAIDS and balanced analgesia." It is important to outline a number of different interpretations which are possible from your letter. You wrote, "I believe the effects of these drugs on renal function in the perioperative period was understated." My editorial's goal was to enhance anaesthetists' use, or at least potential use, for NSAIDs in perioperative pain control. An editorial cannot be a review. As anaesthetists, we are fortunate that NSAIDs have been widely used for years. Data reveal that each year over 70 million prescriptions for NSAIDs are filled in the United States[1] and over 11 million in Australia.[2] Acute renal dysfunction associated with NSAIDs is usually reversible after discontinuation of the NSAID.[3]

If one considers the wealth of literature available on NSAIDs from disciplines outside of anaesthesia, then anaesthetists, as pharmacologists, have no excuse to be unaware of complications of NSAIDs. Unfortunately, there is minimal data about the short-term (less than one week) use of NSAIDs. What is available suggests they are safer in limited use than in prolonged use with respect to gastrointestinal bleeding.[4] Renal function is likely to show minimal and clinically insignificant changes in healthy patients from short-term use.[5]

It is interesting that you quote the Perttunen article with thoracotomy and postoperative fluid restriction to suggest renal injury by diclofenac. Perioperative oliguria in the first 24 hr after major surgery is almost always induced by hypovolaemia. You noted the kidneys "recovered" in 24 hrs. Postoperative patients ane now seldom treated with fluid restriction and intermittent boluses of furosemide for oliguria.

The paper, by Power et al., examined the effect of NSAIDs on renal function after a very major procedure, oesophagogastrectomy, and measured prostaglandin concentrations directly related to renal function. The patients were elderly, had major surgery for a debilitating disease, and would be particularly susceptible to NSAID-induced renal toxicity. Power et al. noted that although diclofenac impaired renal function on the first day after surgery, this effect was short-lived.

In Canada and the United States, ibuprofen, acetylsalicylic acid (ASA) and acetominophen are all available without prescription. Significant renal injury from use of these or prescribed NSAIDs for short-term use (two to three days) must be exceedingly rare in drugs used so frequently. Anaesthetists should be aware of all adverse effects of any drugs we use but should still use the safest combination for the best analgesic outcome. I still feel that NSAIDs should have an increasing role in pre-