analgesia, including a similar event occurring several weeks later, we now use reduced amounts of narcotics intraoperatively in an attempt to reduce the possibility of postoperative apnoea.

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Autonomic hyperreflexia

To the Editor:

We read with interest the article on autonomic hyperreflexia during extracorporeal shock-wave lithotripsy (ESWL) in quadriplegic patients by Chen and Castro (Can J Anaesth 1989; 36: 604–5).

It is well known that a hypertensive crisis in quadriplegic patients is precipitated by distension of the urinary bladder, dilatation of the anorectum, and during childbirth.[1,2] The most probable cause of hypertension might be distention of the bladder. I have witnessed two cases of hypertensive crisis in quadriplegic patients who required catheterization of the bladder for operations not related to the bladder. In the first, the catheter became kinked and in the second the catheter was clamped by mistake and distension of the bladder ensued. Therefore distension of the bladder should be considered in their report.

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REPLY

We agree that autonomic hyperreflexia may be provoked in quadriplegic patients by bladder distension, rectal distension and other gastrointestinal stimuli. It may also be triggered by exposure to cold, high temperature, decubitus formation, sunburn, thrombophlebitis, and pulmonary infarction, as well as tight clothing, supports, shoes, leg back strapping, and child birth.

Each patient undergoing extracorporeal shock-wave lithotripsy (ESWL) treatment for renal and ureteral calculi has bladder catheterization or urostomy drainage established prior to the procedure. Quadriplegic patients frequently have a urostomy drainage catheter in place. The bladder catheter monitors both the amount of hematuria and the discharge of stone fragments. Obstruction by the stone or gravel is more likely to result in ureteral or renal pelvic distention rather than bladder distention. Bladder distension caused by an obstructed or improperly functioning bladder catheter certainly can occur and should be prevented in the quadriplegic patient.

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Atrial natriuretic factor and cardiopulmonary bypass

To the Editor:

Kharasch *et al.* reported a decrease in plasma concentration of atrial natriuretic factor (ANF) during cardiopulmonary bypass (CPB). Their study, as well as other initial studies in cardiac surgical patients,[2,3] is descriptive in nature evaluating plasma ANF levels, but not the relationship between ANF and the biological effects of this peptide. To preserve renal function, diuretics are commonly administered during CPB.[1,4,5] Although urine flow and urinary sodium excretion are well preserved, or even increased, by this means during CPB,[4] decreased renal function is occasionally found after CPB.[6] Therefore, the observation of Kharasch and coworkers[1] that CPB decreases plasma ANF level raises the question of the possible contribution of ANF to the renal function of cardiac surgical patients. An analogy seems to exist to other situations where decreases in plasma ANF level and renal water and sodium excretion are observed simultaneously.[7] Administration of ANF enhances diuresis and