Glycine absorption and visually evoked potentials

Eyesight disturbances and alterations in visual evoked potentials are parts of the transurethral resection syndrome (TUR syndrome) that were recently studied by Mantha *et al.* (*Anaesthesia* 1991; **46:** 491–3). Most authors agree that these effects can be explained by the role of glycine as an inhibitory neurotransmittor in the retina and the brain. Dr Mantha and co-workers found no visual disturbances but a significant prolongation of the p_{100} latency, which was considered to be a toxic effect exerted by the 1.5% glycine solution used to irrigate the bladder during operations. However, their conclusion assumes that a significant amount of the glycine solution was absorbed by the patients, and we do not know if this occurred. The presented data (serum sodium was not changed) rather denies the existence of such pick-up of fluid.

Absorption of irrigating fluid is common during transurethral resection, but it does not occur in every patient. In this hospital, we routinely use glycine solution containing a small amount of ethanol (1%) to detect fluid absorption. [1, 2]. More than 700 patients have been monitored in this way since 1986, and it appears that only about a third of those who undergo transurethral prostatic resection absorb irrigating fluid in any significant amount. Zero absorption was found in many consecutive series of patients exceeding the number of cases studied by Dr Mantha and co-workers. Even though it is true that absorption of less than 100–150 ml of fluid cannot be detected by measurement of breath ethanol or serum sodium [2, 3], the enrichment of glycine in the blood resulting from such low-grade absorption is likely to be very small [4].

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A reply

Thank you for the opportunity of replying to Dr Hahn's letter. We appreciate his interest in our publication and the comments made. Dr Hahn appears to have expressed concern over two issues in our article. They are, significant prolongation of the p_{100} latency with no visual disturbances and the conclusion that the observed alteration in visual electrophysiology was due to glycine absorption, while no changes occurred in serum sodium levels. We will address each of them.

Prolongation of the visual evoked potential (VEP) latency need not necessarily be associated with subjective visual disturbances. For example, patients with subclinical multiple sclerosis have a prolonged VEP latency but normal vision [1]. In a recent study by Casey *et al.* quoted in our article, there was also a significant prolongation of p_{100} latency without visual disturbances after transurethral resection of the prostate (TURP) with glycine irrigation.

Absorption of the irrigating fluid during TURP results from opening up of the prostatic venous sinuses located at the subcapsular plane of the prostate gland. Advancing the resectoscope past the capsule and venous sinuses may result in periprostatic and retroperitoneal accumulation and slow absorption from there. Therefore limiting the resection just up to the capsule of the gland (a variable factor depending upon the expertise of the surgeon) may not result in irrigating fluid absorption at all. This factor might have a role in Dr Hahn's large series in whom zero absorption was observed.

Glycine absorption need not always result in hyponatraemia. Increases in serum glycine levels to more than 4000 $\mu mol.l^{-1}$ were observed without concomitant change in serum sodium levels [2]. In fact, one of Dr Hahn's original studies revealed that in the development of low serum sodium level typical of a severe TUR reaction, rapid massive absorption is more important than a large total absorbed volume [3]. Review of the literature on the subject reveals that only patients with visual disturbances had hyponatraemia indicating massive absorption. Since diazepam, which can increase the VEP latency, was not administered in our study and the anaesthetic technique included a saddle block, we assumed that glycine absorption accounted for the observed changes in visual electrophysiology. Perhaps in our group of patients, there could have been glycine absorption sufficient to cause a prolonged VEP latency (detected by a very sensitive stimulus-pattern shift) but insufficient to cause subjective changes in the vision. Of course our study is limited by lack of serum glycine level measurement and also a method to monitor irrigating fluid absorption.

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The management of accidental dural puncture in labour

If accidental dural puncture (ADP) occurs whilst attempting epidural analgesia in labour the management recommended by textbooks of obstetric anaesthesia is to resite the catheter at another interspace and this would seem to be common practice [1].

Accounts in the literature differ on the safety of this