TOPICAL OR NO ANAESTHESIA FOR EXTERNAL URETHRAL SPHINCTEROTOMY IN NEUROGENIC VESICAL DYSFUNCTION DUE TO SPINAL INJURY

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Abstract. Considerable controversy exists regarding the ideal anaesthetic coverage for external urethral sphincterotomy in spinal injury patients with detrusor-sphincter dyssynergia. From this preliminary experience on 34 patients in whom this procedure was indicated and then attempted under topical (urethral instillation of 20 ml of 2 per cent Lignocaine jelly) or no anaesthesia, we are encouraged into believing that these patients may not require general or regional anaesthesia for this operation.

CONTROVERSIAL opinions have been expressed over the use of general *v.* regional anaesthesia in paraplegic and tetraplegic patients (*Proceedings of the Annual Scientific Meeting of the International Medical Society of Paraplegia*, 1975). We report our encouraging though small experience with the use of urethral instillation of 2 per cent Lignocaine jelly¹ or no anaesthesia at all for external urethral sphincterotomy in neurogenic vesical dysfunction from spinal injury.

Thirty-four patients were selected for external urethral sphincterotomy on the basis of proven detrusor-sphincter dyssynergia resulting in large residual urine, autonomic dysreflexia on bladder filling or presence of high intravesical pressures with vesico-ureteral reflux. Sixteen patients had cervical and 18 patients had dorsolumbar lesions. Twenty patients had reflex bladders and 14 had autonomous bladders. The time between the onset of injury to performance of operation varied between 6 weeks to 12 months. Neurological studies were performed about 12 hours before surgery to have as recent a concept on recovery or otherwise of the bladder.

Procedure

The patient, who did not receive premedication unless apprehensive, was carefully placed in a lithotomy position. The anaesthesiologist made careful note of any evidence of sympathetic overactivity from such postural change. Standby halothane anaesthesia and ganglion blocking agents were kept handy in every case. After the usual prepping and draping the urologist slowly and carefully instilled about 15 ml of non-anaesthetic water-soluble jelly² and then gently passed a 24-Fr or 26-Fr McCarthy resectoscope sheath into the bladder. Careful observations for urethral pain sensation or autonomic dysreflexia were made during passage of the instrument and during bladder filling. In nine patients who had incomplete lesion with preservation of urethral sensation, supplemental 2 per cent Lignocaine jelly instillation was used to abolish urethral sensation and in two patients with cervical injury, who exhibited features of autonomic hyperreflexia during bladder filling at the time of cystometry, 20 ml of 2 per cent Lignocaine

¹ Lignox, Warren Pharmaceutical Pvt. Ltd., 78-B, Industrial Estate, Bombay-400067.

² K-Y Lubricating Jelly, Ethanol Limited, 30-A, Forjett Street, Bombay-400036.

jelly was instilled in the urethra to block the afferent limb of autonomic dysreflexia. A prompt changeover to general anaesthesia with halothane was arranged for when it became necessary to control the hypertensive manifestations of autonomic hyperreflexia during transurethral surgery. In cervical spinal injuries, geriatric patients and those on indwelling Foley catheters for over 2 months, a preliminary T.U.R. of the bladder neck or prostate was performed. After evacuation of the T.U.R. chips in such cases and as the only procedure in the remainder, external urethral sphincterotomy by deep resection at 11 o'clock position was done and these pieces saved separately for identification of striated muscle fibres. A 24-Fr three-way Foley catheter was inserted and a perineal pressure pad temporarily applied. Continuous irrigation was maintained usually for a few hours until the catheter effluent cleared of blood. The anaesthesiologist made frequent note of vital signs during the entire procedure, change of patient position for transport from the operation table to the recovery room and for at least 2 hours after. Pre- and postoperative sedation was kept down to nil or minimum in all cases.

Results

All except one patient withstood the surgery without incident attributable to this technique of topical or no anaesthesia. This solitary patient, who had a D6 lesion and reflex bladder with a large residual had tolerated cystometry, sphincterometry and urethral pressure profile study only 12 hours previously. But he showed signs of sympathetic overactivity in the form of sweating, flushing, bradycardia and severe hypertension on the operation table during bladder filling. Halothane anaesthesia was administered 2 days later to cover the sphincterotomy procedure.

Twenty-two patients were operated without anaesthesia and 11 with supplemental 2 per cent Lignocaine topical anaesthesia. None of the latter group developed any central nervous system toxicity manifestations. Operation time varied between 10 minutes to 1½ hours. One patient complained of mild urethral stretch sensation at the beginning of sphincterotomy but stood the procedure comfortably without pain after the initial cuts were made. Another tetraplegic required a repeat sphincterotomy to reduce bladder residual. He tolerated both procedures well without any anaesthesia. A 65-year-old patient, with C5 injury resulting in intercostal paralysis and diaphragmatic breathing, required a tracheostomy for efficient suction of copious secretions. He would have been considered a general anaesthesia hazard (Welply, Mathias & Frankel, 1975). But he was able to undergo a T.U.R. of a 15-g prostate and an external urethral sphincterotomy without anaesthesia over an operating time of 1 hour without any mishap.

Discussion

Anaesthesia imposes certain hazards in spinal cord injured patients who often show abnormal haemodynamic responses to volume changes and to administration of drugs. Jousse and colleagues reviewed the literature in 1968 and found reports of 546 surgical and anaesthetic deaths in 2600 patients (quoted by Kadis, Diaz & Lack, 1973). Thirty-five of these (6.4 per cent) occurred postoperatively with cardiac arrest occurring in 15. The anaesthetic problems in paraplegic patients are very many and have been enumerated by Desmond (1970). Hence it would be very much desirable if surgery could be performed in these patients without incurring the risks and morbidity of general or regional anaesthesia.

We have shown that it is indeed possible to perform external urethral sphincterotomy and even T.U.R. of prostate with no anaesthesia in those patients who had complete transection of the spinal cord. The only problem of autonomic dysreflexia could be managed by urethral instillation of Lignocaine jelly or by halothane anaesthesia (Alderson & Thomas, 1975). Patients with incomplete lesion who had intact urethral sensation could undergo external urethral sphincterotomy and T.U.R. of prostate under topical Lignocaine anaesthesia and did not require change over to general or regional anaesthesia.

Although we have been greatly encouraged thus far with local or no anaesthetic coverage for external urethral sphincterotomy, we are aware that our series must be enlarged considerably to encompass variants in spinal injury cases like appearance of priapism, autonomic dysreflexia, anaesthetic toxicity or acute pain at the site of trauma on assuming a lithotomy position, which would influence the choice of a suitable anaesthetic. Until such time that the place of this method advocated by us is seen in true perspective, we offer it at least as an alternative in cases where there may be hesitation in using general or regional anaesthesia, for medical or medico-legal reasons and also to avoid the potentially dangerous hazards such as circulatory instability and pulmonary oedema during general anaesthesia (Troll & Dohrmann, 1975). Urethral Lignocaine instillation has been used as the medical therapy to control autonomic dysreflexia emanating from the urethral receptors (Bors & French, 1952). Thus it would appear logical to take advantage of this fact and extend its scope to cover transurethral surgical procedure also in such cases.

SUMMARY

A preliminary report on 34 patients of spinal injury, on whom endoscopic external urethral sphincterotomy under topical or no anaesthesia was attempted, is presented. With a single exception, all tolerated the procedure well, even when this involved an additional T.U.R. of the prostate or bladder neck. We recommend, for the time being, that this alternative be at least kept in mind in cases where strong objections to the use of general or regional anaesthesia for covering this operation are raised.

RÉSUMÉ

Un rapport préliminaire est présenté, sur 34 patients ayant une lésion vertébrale, sur qui la sphinctérotomie endoscopique urétrale externe était tentée sans anesthésie ou sous l'anesthésie locale. A l'exception d'un seul, tous les patients ont bien supporté la procédure même quand cela comportait un T.U.R. additionnel, du col de la prostate et de la vessie. Nous recommandons pour le moment, qu'on tienne compte de cette alternative dans des cas où on souleve les objections fortes contre l'usage de l'anesthésie générale ou régionale dans cette opération.

ZUSAMMENFASSUNG

Ein vorläufiger Bericht wird über 34 Kranken mit Spinalschädigung gegeben, die endoscopisch einer externen urethralen Sphinkterotomie unterworfen wurden. Mit einer Ausnahme haben alle den Vorgang gut ertragen, auch mit einem weiteren T.U.R. der Prostata oder des Blasenhals.

REFERENCES

- ALDERSON, J. D. & THOMAS, D. G. (1975). The use of halothane anaesthesia to control automatic hyperreflexia during trans-urethral surgery in spinal cord injury patients. *Paraplegia*, **13**, 183-188.

- BORS, E. & FRENCH, J. D. (1952). Management of paroxysmal hypertension following injuries to cervical and upper thoracic segments of the spinal cord. *Arch. Surg.* **64**, 803-812.
- DESMOND, J. (1970). Paraplegia: problems confronting the anaesthesiologist. *Canad. Anaesth. Soc. J.* **17**, 435-451.
- KADIS, L. B., DIAZ, P. M. & LACK, J. A. (1973). *Anaesthesia and Uncommon Diseases*. W. B. Saunders, Philadelphia, p. 391.
- Proceedings of the Annual Scientific Meeting of the International Medical Society of Paraplegia*, 24 July (1975). *Paraplegia*, **13**, 189-190.
- TROLL, G. F. & DOHRMANN, G. J. (1975). Anaesthesia of the spinal cord-injured patient: cardiovascular problems and their management. *Paraplegia*, **13**, 162-177.
- WELPLY, N. C., MATHIAS, C. J. & FRANKEL, H. L. (1975). Circulatory reflexes in tetraplegics during artificial ventilation and general anaesthesia. *Paraplegia* **13**, 172-182.