Title : INTERPLEURAL CATHETER IN THE MANAGEMENT OF POSTOPERATIVE PAIN.

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Introduction. In recent years, awarness of the value of adequate postoperative pain relief has been increasing, and several methods have been introduced. We present a new method in the treatment of postoperative pain in certain groups of patients based on insertion of an extradural catheter into the pleural space. The method has been employed to treat postoperative pain after renal surgery, unilateral mammary surgery and cholecystectomy with subcostal approach. The results have been encouraging and we feel that the technique is worthy of description.

Methods. After completion of surgery, before terminating general anesthesia and with the patient lying on the unoperated side, a 16-G Tuohy needle with a curved tip was introduced at an angle of 30-45° through the skin of the eight intercostal space independent of the type of operation. The site of injection was 10 cm from the mid-line caudally, and the needle was introduced in a medial direction with the culting edge uppermost. The Tuohy needle was then pushed inwards just under the lower edge of the upper rib. After perforating the caudal intercostal membrane, the stylet was removed, and a well wetted and freely moving air-filled all-glass syringe attached to the hub of the needle. Syringe and needle were then carefully advanced together, and after the "clicking" perforation of the parietal pleura, the negative pressure in the pleural space will elegantly surge the plunger of the syringe forward. The syringe was removed, and an extradural catheter quickly and easily introdused 5-6 cm into the pleural space and the needle withdrawn. The catheter was fixed and attached to a micropore filter.20 ml of 2%=0,5% bupivacaine with epinephrine was then injected, and general anesthesia discontinued in the usual way. Any residual fentanyl effect was neutralized with naloxone. Postoperative maintance therapy consisted of repeat injections of 20 ml 0,5% bupivacaine with epinephrine when pain was again experienced. The catheter was removed 48 hours after insertion.

Results. At our hospital, we have during the last months employed this method as the sole treatment for pain in the early postoperative period in 30 patients. 10 of the patients had undergone cholecystectomy with subcostal approach, 10 unilateral operations of the mamma while 10 had undergone renal surgery. 18 were female and 12 male. Their ages ranged from 24 to 79 years. The first dose of bupivacaine was effectiv for anaverage of 11 h , the range being from 6 h to 26 h. The patients required "topping up" with bupivacaine on average every seventh hour with a range from 5 h to 14 h. The onset of effect was very rapid, 1-2 minuts after injection. No supplementation of analgesia (opioids) was requisted by any patient in the group. Tachyphylaxis to the local anesthetic presented no problem. Radiological examinations following placement of the catheter and 24 h after removal of the catheter were performed in all patients. No evidence of pneumothorax was found. We observed no cardiovascular changes.

Discussion. We have described a new and very simple technique for postoperative pain relief in certain groups of patients which seems reliable and very effective. No complications occured in our study. What is the nature behind this method? One possible mode of action is a reverse diffusion of local anesthetics from the pleural space back into the subpleural space and then a passing through the flimsy fibres of m. intercostalis intimus for finally to reach a large number of intercostal spaces and thus blocking several intercostal nerves. Even if the exact nature and extent of the method is to be elucidated, the described technique should in our opinion be more widely tested as a possible alternative to other forms of postoperative pain relief.