MORPHINE INJECTIONS IN CISTERNA MAGNA FOR INTRACTABLE PAIN IN CANCER PATIENTS.

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Introduction

Intrathecal opiates administration is an effective method of producing analgesia in cancer patients with intractable pain (4, 2). In these patients a catheter is generally introduced in the lumbar subarachnoid space and connected to a drug release system implanted subcutaneously in the abdominal wall. In patients with facial or cervical pain the catheter may be inserted in the lateral ventricle (1) but in these cases visual hallucinations and disorientation are frequently observed. The aim of this study is to test another route of administration : cisterna magna.

Patients and method

This study was carried out in 21 patients following approval of our institution's commitee for the Protection of Human Subjects and informed consent from each patient. In all cases relief of pain could not be obtained with systemic narcotics.

Implantation was performed under local anesthesia with the patient awake and in the lateral position. A 14 G Tuohy needle was introduced medially between C_1 and the skull, the bevel oriented downward. The needle was carefully advanced (4-6 cm) while aspirating with a syringe. Issue of CSF confirmed penetration of cisterna magna. A silastic catheter was gently threaded down (2-3 cm past the needle). The reservoir, filled with saline was then implanted subcutaneously on the shoulder and connected to the tunneled catheter. Postoperatively the patients were evaluated for 3 to 6 days in the hospital. Before discharge they were given information regarding the system and its possible side effects.

Results

Despite this unusual approach there were no technical problems during implantation. Two patients experienced transient paresthesia as the catheter was threaded through the needle. In all cases pain relief was obtained with morphine injected once a day in the reservoir. Analgesia was complete, irrespective of the anatomical location of pain. Table 1 summarizes duration of treatment and evolution of doses. No respiratory depression nor hallucinations were observed. Transient somnolence occuring in 4 patients subsided spontaneously without discontinuation of treatment. In 3 other cases we observed urinary retention lasting for 2 to 4 days. Unfortunately with long term administration problems did appear in a few patients : 3 patients developed infection of the implanted reservoir with meningeal signs. According to a technique previously described (3) we left the reservoir implanted. Antibiotic treatment was started immediately. Symptoms and fever disappeared in 2 or 3 days, the CSF cultures were sterile after 48 h and the leucocytes count returned to normal values 8-10 days later. Some degree of tolerance to morphine occured with the passage of time. Tolerance appeared more rapidly in two patients who received large amounts of oral morphine before intrathecal treatment. One patient needed 15 mg/d after 13 months evolution.

Discussion

Intractable pain in cancer patients is relieved by injecting small doses of morphine in the cisterna magna. Analgesia is complete and irrespective of anatomical location of pain. Subarachnoid injections of morphine in the lumbar region are only effective for pain in the pelvic organs (4). The wide distribution of opiate receptor sites in the midbrain and pons (periaqueductal grey matter, nucleus raphe magnus, trigeminal and vagal nuclei) suggest that opiates injected in cisterna magna act by influencing many areas concerned with processing nociceptive stimuli and not only substantia gelatinosa. Hallucinations and disorientation, frequently observed with the intraventricular route (2) are not observed when morphine is injected in cisterna magna. The other side effects (tolerance, infection) do not differ from the other routes of administration (2).

Conclusion

Morphine injection in cisterna magna offers a hopeful alternative in the management of terminal cancer pain. Further studies on the drugs and improvement in the design of injection devices are needed to reduce the incidence of side effects.

Table 1

mean duration of treatment (days)	mean initial dose(mg/d)	mean final dose (mg/d)
59 (8-413)	2.0 (0.5-3)	5.15 (2-15)

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