

## Interscalene block in day case open shoulder surgery—a preliminary report

C.E.R. Gibbons \*, S.J. Pope, G. Samsoon, M.J. Curtis

*Departments of Orthopaedics and Anaesthesia, Kingston Hospital, Galsworthy Road, Kingston upon Thames, Surrey KT2 7QB, UK*

Received 25 March 1998; accepted 27 April 1998

### Abstract

A prospective study of 43 patients undergoing day case open shoulder surgery under general anaesthesia was performed. All patients received an interscalene block for post-operative analgesia. Pre and post-operative pain scores, time to first dose of analgesia and patient satisfaction were recorded. Interscalene blockade provided good pain relief for up to 12 h in the majority of patients. Two patients were admitted due to inadequate pain relief and one complication of interscalene block was recorded. © 1999 Elsevier Science B.V. All rights reserved.

*Keywords:* Analgesia; Patient; Pain relief

### 1. Introduction

Major open shoulder surgery can be very painful and may require hospital stay for pain relief. Recent reports have demonstrated the efficacy of interscalene blockade [1] for post-operative pain relief after shoulder surgery. The use of interscalene blockade for day case decompressive acromioplasty has previously been described with good results [2].

Interscalene block should result in the blockade of the upper roots of the brachial plexus as local anaesthetic is injected into the plexus sheath at the level of the sixth cervical vertebra. Interscalene injection may result in phrenic and recurrent laryngeal blockade [3] and vertebral artery injection has been reported.

In this study, the analgesic effects and patient satisfaction were recorded in 43 patients undergoing open shoulder surgery with general anaesthesia and interscalene blockade. All patients were under the care of the senior author and all interscalene blocks were administered by the same consultant anaesthetist.

### 2. Method

In this study, 43 patients underwent open shoulder surgery as day patients at Kingston Day Case Unit, over a 12-month period. Open subacromial decompression for impingement was performed in 27 patients. Other procedures performed included Bosworth scaw fixation for disruption of the acromioclavicular joint, excision of the distal end of the clavicle with soft tissue stabilization and anterior stabilization of the shoulder.

All patients had a general anaesthetic and after induction, an interscalene block was performed with 40 ml of 0.25% bupivacaine. All blocks were performed by the same consultant anaesthetist with the aid of a nerve stimulator using the technique described by Winnie et al [4].

Pre-operative pain scores were recorded using the visual analogue scale method (0–100 mm) and pain scores were recorded at 1, 3, 12 and 24 h post-operatively by the patient. Patients were prescribed the same oral analgesia (Co-dydramol) during the post-operative period in the day unit and after discharge.

Each patient was telephoned the next day to record pain scores, time to first dose of oral analgesia, patient

\* Corresponding author.

Age	mean 49 (range 19–68)
Sex	male 24 female 19
Operation	
Subacromial decompression	27
Bosworth screw fixation	6
Excision distal end clavicle	5
Anterior stabilization	5

Fig. 1. Patient data.

satisfaction and any complications of surgery or blockade.

### 3. Results

#### 3.1. Patient data

The mean age of the patients in this study was 49 years (range 19–68), with the majority of patients being male (24). The type and number of operations are shown in Fig. 1.

#### 3.2. Pain scores

The mean pre-operative pain score was 20 (VAS 0–100 mm) and pain scores at 1 and 3 h were recorded as 10 and 9, respectively (Fig. 2). Pain scores at 12 h were slightly higher than pre-operative levels, but at 24 h were significantly higher.

#### 3.3. Time to first dose of oral analgesia

The mean time to first dose of analgesia was 8 h, which corresponded with the increase in pain scores using the visual analogue scale.

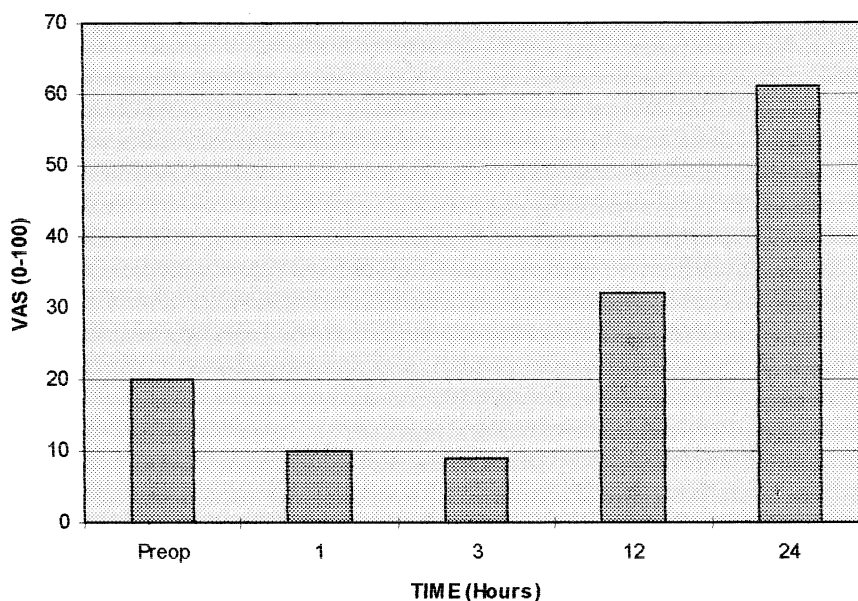


Fig. 2. Pain scores (visual analogue scale).

#### 3.4. Complications

One patient sustained a haematoma at the site of the interscalene block, but did not require hospital admission. Two other patients had significant bruising at the surgical site, resulting in one superficial wound infection which was treated with oral antibiotics.

#### 3.5. Patients requiring admission

Two patients were admitted for overnight stay from the day case ward, both due to failure of the interscalene blockade and inadequate pain relief. One patient was admitted via casualty later in the evening, with a perfectly working interscalene block which was not recognised by the admitting doctor.

#### 3.6. Patient satisfaction

Out of 43 patients, 36 (84%) were satisfied with their pain relief. Forty-one recorded a variable pattern of numbness and weakness of the arm, which was consistent with a successful interscalene block.

### 4. Discussion

Shoulder surgery may result in significant pain post-operatively and in many centres shoulder procedures are not performed as day cases.

In our series, 43 patients undergoing open shoulder surgery were chosen as day case patients. All patients received an interscalene block after induction and the side effects were fully discussed on the day of opera-

tion. Two patients (5%) were admitted due to inadequate pain relief and therefore the success of interscalene block in our series was high.

Three patients recorded post-operative complications, one due to haematoma formation at the site of the interscalene block. There were no respiratory complications. Urmey et al. have reported a 100% incidence of hemidiaphragmatic paresis (phrenic nerve blockade) diagnosed by ultrasonography after interscalene blockade anaesthesia [5].

Visual analogue scales and time to first dose of analgesia showed that the interscalene block worked well in the majority of patients for 12 h and then tailed off. This has been shown to be the case in other series using interscalene blockade [6].

## 5. Conclusion

Open shoulder operations can be painful procedures requiring good post-operative analgesia. In carefully selected patients, our series shows that a number of open shoulder procedures can be successfully performed as day cases with the aid of interscalene blockade.

In our series, 84% of patients were satisfied with their post-operative pain relief. There were two failures of interscalene blockade requiring hospital admission and one complication of haematoma formation due to the block.

The side effects of interscalene block should be discussed before the operation and also the patients should be aware that the analgesic effects of the block diminishes after 12 h.

## References

- [1] Conn RA, Cofield RH, Byer DE, Linstromberg JW. Interscalene block anaesthesia for shoulder surgery. *Clin Orthop* 1987;216:94–8.
- [2] Kinnard P, Truchon R, St-Pierre A, Montreuil J. Interscalene block for pain relief after shoulder surgery. *Clin Orthop* 1994;304:22–4.
- [3] Schuster SB, Kafer ER, Mandel S. Phrenic nerve block associated with interscalene brachial plexus block. *Reg Anesth* 1983;8:123.
- [4] Winnie AP, Collins VJ. Interscalene brachial plexus block. *Anaesth Anal* 1970;49:455.
- [5] Urmey WF, Talts KH, Sharrock NE. One hundred percent incidence of hemidiaphragmatic paresis associated with interscalene brachial plexus anaesthesia as diagnosed by ultrasonography. *Anaesth Anal* 1991;72:498–503.
- [6] Flory N, Van-Gessel E, Donald F, Hoffmeyer P, Gamulin Z. Does the addition of morphine to brachial plexus block improve analgesia after shoulder surgery? *Br J Anaesth* 1995;75:23–6.