

Intramuscular deltoid pressures and efficiency of the cryotherapy in arthroscopic surgery of the shoulder

Jin-Young Park, M.D., Hong-Koon Jeong, M.D., Soon-Haeng Kwon, M.D., Jin-Soo Kim, M.D., Myung-Ho Kim, M.D., Seok-Gon Kim, M.D.*

Department of Orthopaedics Surgery

*Department of Anesthesia **

Dankook University College of Medicine, Cheonan, Korea

During the arthroscopic surgery of the shoulder, there was extravasation of fluid into the surrounding soft tissue due to the use of pressure pump irrigator. Clinically, a shoulder became extremely tense and the deltoid muscle pressure elevated to dangerous levels.

We studied 35 consecutive patients who underwent various arthroscopic shoulder procedures at the Dankook university Hospital. The arthroscopic procedures were acromioplasty, Bankart repair and lateral clavicle resection. 27 patient were fitted with a cryotherapy device in the operating room, and 8 were not according to the patients option. We monitored deltoid muscle pressure during arthroscopic procedures and postoperative period until return to preoperative pressure level. Otherwise, postoperative treatment was identical for the two groups. We evaluated the effect of cryotherapy in the postoperative shoulder.

The results were followed:

1. Intraoperative highest intramuscular deltoid pressure was average $169 \pm 68 \text{ mmHg}$ ($71-293 \text{ mmHg}$). No significant difference was found between cryotherapy group and non-cryotherapy group ($p=0.12$).
2. Immediate postoperative deltoid pressure was average $58 \pm 28.1 \text{ mmHg}$
3. The pressure had returned to the preoperative level within 150min of the postoperative period ($p<0.05$).
There was no significant difference statistically between two groups, $114 \pm 41 \text{ min}$ in the cryotherapy group and $116 \pm 32.6 \text{ min}$ in the non-cryotherapy group.
4. During postoperative period, the shoulder pain was less severe in the cryotherapy group for 2 days.
5. There was no disturbance of visualization due to bleeding during

arthroscopic shoulder procedure.

6. Complications were developed in 1 patient (2.9%) during procedures: bursitis. Other complications did not occur.

Arthroscopic surgery of the shoulder can be performed with minimal complications in spite of high intramuscular deltoid pressure. Cryotherapy is effective in pain relief but cannot minimize swelling postoperatively.