

Hand and Foot Surgery Continuous Infusion – Volume and Flow Rate Selection

A potential complication may occur if too much fluid is infused into the incision site near the fingers or toes.

Caution should be used when selecting appropriate volumes and flow rates keeping in mind potential fluid build up in a restricted space that may lead to complications. Complications may include: edema, seroma, blisters, dehiscence, tissue sloughing and subsequent necrosis when too much fluid is delivered into the incisional site near the distal end of extremities (such as fingers and toes). The nerve block approach instead of incisional site catheter placement may be preferred for these procedures. Sprinkle and Watkins (1, 2) describe a nerve block procedure for bunionectomies where the catheter is placed away from the incision site. This approach appears to provide good pain relief while minimizing complications that may occur with incisional site placement.

In general, the total volume of fluid delivered should decrease as the catheter placement gets closer to the distal end of extremities. White (3) selected 270 ml at 5 ml/hr for delivery into the leg. Sprinkle (1) and Watkins (2) selected 100 ml at 2 ml/hr for delivery into the foot. All three used the nerve block approach.

In summary, when using the ON-Q after these procedures the following should be considered:

- Avoid incisional site catheter placement near the distal end of extremities (such as fingers and toes)
- Avoid flow rates in excess of 2 ml/hr in the hand or foot
- Avoid total volumes greater than 100 ml in the hand or foot.

The references below are not to be construed as I-Flow's specific recommendations. As with any surgical procedure, it is the responsibility of the physician to determine the appropriate catheter placement, medication, pump volume and flow rate for each individual patient.

Reference:

1. ON-Q Catheter Placement Technique, Bunionectomy – Dr. Ralph Sprinkle, Podiatrist.
2. ON-Q Catheter Placement Technique, Bunionectomy - Dr. Leon Watkins, Podiatrist.
3. White P et al. The use of a continuous popliteal sciatic nerve block after surgery involving the foot and ankle: Does it improve the quality of recovery? *Anesth Analg* 2003;97:1303-1309.
4. Wood W. Postoperative pedal edema. *J Foot Surg* 1977;16(1):15-6.
5. Zgonis T et al. The efficacy of prophylactic intravenous antibiotics in elective foot and ankle surgery. *J Foot Ankle Surg* 2004;43(2):97-103.
6. Moody V, Wagner W. Neurocirculatory disorders of the foot. *Clin Orthop* 1977;Jan-Feb(122):53-61.
7. Lewis B, Steinberg S. The nuances of treating post-operative edema. *Podiatry Today* Aug. 2001; 44-48.

Please contact the Clinical Services Department at 800-444-2728 or 949-206-2700 if you have any questions regarding this information.

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