

AVANOS

CLINICAL COMPENDIUM

ON-Q* STUDIES NOT SPONSORED
BY AVANOS MEDICAL – PUBLISHED
BETWEEN 2012-2017

ON-Q*
PAIN RELIEF SYSTEM



1 Continuous popliteal sciatic nerve block versus single injection nerve block for ankle fracture surgery: a prospective randomized comparative trial

2 The analgesic effects of a bilateral sternal infusion of ropivacaine after cardiac surgery

3 Posterior paramedian subrhomboidal analgesia versus thoracic epidural analgesia for pain control in patients with multiple rib fractures

4 Comparison of ON-Q* elastomeric pump system and thoracic epidural analgesia methods for pain management after thoracotomy

5 The effectiveness of ambulatory continuous peripheral nerve blocks for postoperative pain management in children and adolescents

6 Improving postoperative pain management in subpectoral tissue expander implant reconstruction of the breast using an elastomeric pump

7 Epidural versus ON-Q* local anesthetic-infiltrating catheter for post-thoracotomy pain control

8 Randomized clinical trial of local infiltration plus patient-controlled opiate analgesia vs. epidural analgesia following liver resection surgery

9 The 2012 Chitranjan Ranawaat Award: intraarticular analgesia after TKA reduces pain: a randomized double-blinded, placebo- controlled, prospective study

10 Postoperative pain after abdominal hysterectomy: a randomized, double-blind, controlled trial comparing continuous infusion vs patient-controlled intraperitoneal injection of local anaesthetic

11 Randomized trial of subfascial infusion of ropivacaine for early recovery in laparoscopic colorectal cancer surgery

12 The ON-Q* pain management system in elective gynecology oncologic surgery: management of postoperative surgical site pain compared to intravenous patient-controlled analgesia

13 Evaluation of novel local anesthetic wound infiltration techniques for postoperative pain following colorectal resection surgery: a meta-analysis

14 Local anesthetic infusion pump for pain management following open inguinal hernia repair: a meta-analysis

15 Application of continuous incisional infusion of local anesthetic after major pediatric urological surgery: prospective randomized controlled trial

16 Local delivery of bupivacaine in the wound reduces opioid requirements after intraabdominal surgery in children

17 ON-Q* pump for pain control after orbital implant surgery

18 Post-operative pain control for burn reconstructive surgery in a resource-restricted country with subcutaneous infusion of local anesthetics through a soaker catheter to the surgical site: preliminary results

19 Comparison between systemic analgesia, continuous wound catheter analgesia and continuous thoracic paravertebral block: a randomized, controlled trial of postthoracotomy pain management

20 Continuous peripheral nerve block compared with single-injection peripheral nerve block: a systematic review and meta-analysis of randomized controlled trials

21 Surgically placed wound catheters (SPWC) and local anaesthetic infusion in breast surgery: efficacy and safety analysis

22 A continuous infusion fascia iliaca compartment block in hip fracture patients: a pilot study

23 ON-Q* pain pump versus epidural for postoperative analgesia in children

24 Continuous adductor canal blocks are superior to continuous femoral nerve blocks in promoting early ambulation after TKA

25 Use of continuous local anesthetic infusion in management of postoperative split-thickness skin grafts donor site pain

26 Outpatient analgesia via paravertebral peripheral nerve block catheter and pump - a case series

ABBREVIATIONS

#	STUDY	SUMMARY		
		DESIGN	DEVICE/PROCEDURE	AUTHOR'S CONCLUSION
1	<p>Continuous popliteal sciatic nerve block versus single injection nerve block for ankle fracture surgery: a prospective randomized comparative trial</p> <p>Ding DY, et al. J Orthop Trauma 2015; 29(9): 393-398.</p> <p>Department of Orthopaedic Surgery, New York University School of Medicine, New York, NY. USA</p> <p>www.ncbi.nlm.nih.gov/pubmed/26165259</p>	<p>Randomized Controlled Trial (RCT). Double blinded until day of surgery.</p> <p>44 patients:</p> <ul style="list-style-type: none"> • 23 pts received sciatic single shot block (SSB) plus continuous block • 21 pts received only SSB. 	<p>ON-Q* Ropivacaine 0.2% at 8 ml/hr.</p> <p>-----</p> <p>Adult patients undergoing open reduction and internal fixation of unstable ankle fractures.</p>	<p>Use of continuously infused regional anesthetic for pain control in ankle fracture surgery significantly reduces "rebound pain" and the need for oral opioid analgesia compared with single-shot regional anesthetic.</p>
2	<p>The analgesic effects of a bilateral sternal infusion of ropivacaine after cardiac surgery</p> <p>Eljezi V et al. Reg Anesth Pain Med 2012; 37:166-174.</p> <p>University Clermont - Clermont-Ferrand, France</p> <p>https://pubmed.ncbi.nlm.nih.gov/22266899/</p>	<p>RCT, placebo-controlled, double-blinded.</p> <p>40 patients:</p> <ul style="list-style-type: none"> • 20 ON-Q* • 20 Placebo 	<p>ON-Q* dual site - 4 ml/hr Soaker catheters</p> <p>-----</p> <p>Sternotomy</p>	<p>In conclusion, a 48-hr infusion of BLS ropivacaine improved postoperative analgesia at rest and during mobilization. These effects were shown mainly during the second day after surgery, but the quality of rehabilitation (except for respiratory outcomes) was also improved. Large-sample studies are now needed to give precision about safety and efficacy on postoperative morbidity.</p>
3	<p>Posterior paramedian subrhomboidal analgesia versus thoracic epidural analgesia for pain control in patients with multiple rib fractures</p> <p>Shelley CL, et al. J Trauma Acute Care Surg 2016;81(3): 463-67.</p> <p>Dept of Surg and Anesthesiology. University of Kansas Medical Center, Kansas City KS</p> <p>www.ncbi.nlm.nih.gov/pubmed/27270854</p>	<p>Prospective non-randomized.</p> <p>30 adult patients:</p> <ul style="list-style-type: none"> • 19 received thoracic epidural analgesia (TEA) • 11 patients received posterior paramedian subrhomboidal (PoPS) analgesia 	<p>ON-Q* with SAF and ONDemand Ropivacaine 0.2% for both TEA and PoPS.</p> <p>-----</p> <p>Trauma patients with 2: 3 rib fractures that occurred :s 24 hrs prior.</p>	<p>In conclusion, in patients with multiple acute rib fractures, PoPS may provide analgesia not inferior to TEA while being less invasive, perhaps safer, and can be more readily placed by either an anesthesiologist or a trauma surgeon. Additional studies with a greater power are needed to prove equivalence of PoPS to TEA in this population, including a randomized prospective study.</p>
4	<p>Comparison of ON-Q* elastomeric pump system and thoracic epidural analgesia methods for pain management after thoracotomy</p> <p>Sagiroglu G, et al. Turk Googus Kalp Damar Cerrahi Dergisi. 2017; 25(1):124-32.</p> <p>Trakya University. Edime, Turkey</p> <p>http://tgkdc.dergisi.org/abstract.php?id=2503</p>	<p>Prospective, randomized, double-blind.</p> <p>97 patients:</p> <ul style="list-style-type: none"> • 50 pts ON-Q* (Group 1) • 47 pts thoracic epidural (Group 2). 	<p>ON-Q* 270 ml. Catheter placed in inferior part of thoracotomy incision.</p> <p>-----</p> <p>Thoracotomy surgery</p>	<p>In conclusion, the quality of postoperative analgesia is better with thoracic epidural analgesia in comparison to ON-Q*elastomeric pump system. However, ON-Q*elastomeric pump system is technically easier and safer to apply in comparison to thoracic epidural analgesia with significantly less incidence of side effects, mainly hypotension. Therefore, ON-Q*elastomeric pump system may be recommended in patients undergoing thoracotomy, for which thoracic epidural analgesia is not preferable, for pain relief in the early postoperative period.</p>

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5	<p>The effectiveness of ambulatory continuous peripheral nerve blocks for postoperative pain management in children and adolescents</p> <p>Visoiu M. et al. Paediatr Anaesth 2014;24: 1141-8.</p> <p>Department of Anesthesiology, Children's Hospital of Pittsburgh - Pittsburgh, PA</p> <p>www.ncbi.nlm.nih.gov/pubmed/25176318</p>	<p>Prospective series/retrospective report</p> <p>403 pediatric patients:</p> <ul style="list-style-type: none"> • (5-22 y/o) 	<p>ON-Q* with SAF Ropivacaine 0.24 mg/kg/hr</p> <p>-----</p> <p>Orthopedic and plastic procedures CPNB</p>	<p>In conclusion, it is feasible to discharge pediatric patients home with CPNBs and ON-Q* pumps as long as a dedicated interventional pain program providing adequate education and follow-up is available. Our experience supports using ambulatory CPNBs leading to high satisfaction with pain control and low pain scores and emphasizes the need for home oral analgesics. However, the effectiveness of ambulatory pediatric CPNBs should be determined also by prospective, controlled, blinded studies.</p>
6	<p>Improving postoperative pain management in subpectoral tissue expander implant reconstruction of the breast using an elastomeric pump</p> <p>Chaudry A, et al. Ann R Coll Surg Engl. 2015; 97: 364-68.</p> <p>Great Western Hospital NHS Foundation Trust. UK</p> <p>www.ncbi.nlm.nih.gov/pmc/articles/PMC5096569/</p>	<p>Retrospective comparison.</p> <p>50 patients:</p> <ul style="list-style-type: none"> • 25 received elastomeric infusion of local anesthetic. • 25 controls did not. 	<p>B. Braun EasyPump (ON-Q*) at 5 ml/hr.</p> <p>-----</p> <p>Mastectomy and insertion of subpectoral tissue expander implant</p>	<p>There was significantly reduced pain with the use of the local anaesthetic infusion pump. The elastomeric pump is a step towards enhanced patient recovery after breast surgery in the case of skin sparing mastectomy and subpectoral tissue expander reconstruction.</p>
7	<p>Epidural versus ON-Q* local anesthetic-infiltrating catheter for post-thoracotomy pain control</p> <p>Gebhardt R, et al. J Cardiothorac Vasc Anesth 2013; 27(3): 423-26.</p> <p>Department of Pain Medicine, University of Texas MD Anderson Cancer Center, Houston, TX. USA</p> <p>www.ncbi.nlm.nih.gov/pubmed/23672860</p>	<p>Retrospective review</p> <p>50 patients:</p> <ul style="list-style-type: none"> • 26 received continuous infusion near incision until POD3 • Controls received thoracic epidural catheter with continuous plus as needed administration (PCEA). 	<p>ON-Q* Catheter placed under muscle close to the costovertebral joints</p> <p>-----</p> <p>Adult patients age 24-81. Open thoracotomy.</p>	<p>In conclusion, the results support ON-Q* infiltrating catheters as a good option for providing postoperative analgesia to patients having an open thoracotomy. In this institution, this method has allowed the authors to transition patients to oral analgesics faster and send them home earlier, thus reducing the total hospital stay and bill.</p>
8	<p>Randomized clinical trial of local infiltration plus patient-controlled opiate analgesia vs. epidural analgesia following liver resection surgery</p> <p>Revie ER, et al. HPB 2012;14:611-18.</p> <p>Department of Clinical Surgery, University of Edinburgh, Edinburgh, UK</p> <p>www.ncbi.nlm.nih.gov/pubmed/22882198</p>	<p>RCT single-blinded.</p> <p>65 patients:</p> <ul style="list-style-type: none"> • 33 ON-Q* • 32 epidural 	<p>ON-Q* PainBuster Dual pump with SilverSoaker</p> <p>-----</p> <p>Adults - Open liver resection</p>	<p>Local anaesthetic wound infiltration combined with patient-controlled opiate analgesia reduces the length of time required to fulfill criteria for discharge from hospital compared with epidural analgesia following open liver resection. Epidural analgesia provides superior analgesia, but does not confer benefits in terms of faster mobilization or recovery.</p>

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9	<p>The 2012 Chitranjan Ranawaat Award: intraarticular analgesia after TKA reduces pain: randomized double-blinded, placebo- controlled, prospective study</p> <p>Goyal N et al. Clin Orthop Relat Res 2013; 471:64-75.</p> <p>Anderson Orthopedic Clinic - Alexandria, VA</p> <p>www.ncbi.nlm.nih.gov/pubmed/23011843</p>	<p>RCT, double-blind, placebo</p> <p>160 patients:</p> <ul style="list-style-type: none"> • 80 ON-Q* • 80 Placebo" 	<p>ON-Q*</p> <p>-----</p> <p>Total knee arthroplasty</p>	<p>Based on our results, patients undergoing TKA may positively benefit from the use of a postoperative intraarticular catheter in decreasing overall pain levels and reducing the need for opioids for pain management, and intraarticular analgesia may provide an effective alternative for pain relief in the immediate postoperative time period without the disadvantages encountered with epidural anesthesia, regional nerve blockade, and patient-controlled analgesia pumps.</p>
10	<p>Postoperative pain after abdominal hysterectomy: a randomized, double-blind, controlled trial comparing continuous infusion vs patient-controlled intraperitoneal injection of local anaesthetic</p> <p>Perniola A. et al. B J Anaesth 2014; 112: 328-336.</p> <p>Department of Anesthesiology and Intensive Care, University Hospital - Orebro, Sweden</p> <p>www.ncbi.nlm.nih.gov/pubmed/24185607</p>	<p>RCT, blinded</p> <p>40 patients</p>	<p>ON-Q* and Electronic PCA levobupivacaine 0.125% NS Control</p> <p>-----</p> <p>Total hip arthroplasty; 2 cath placed intraperitoneally</p>	<p>A statistically significant opioid-sparing effect was found when patient-controlled levobupivacaine was administered intraperitoneally as needed compared with continuous infusion. This was associated with a faster return of GI function and home- readiness. There was, however, a wide confidence interval in the primary endpoint, opioid consumption.</p>
11	<p>Randomized trial of subfascial infusion of ropivacaine for early recovery in laparoscopic colorectal cancer surgery</p> <p>Lee SH, et al. Korean J Anesthesiol 2016; 69(6):604-13.</p> <p>Dept. of Anesthesiology and Pain Medicine, Samsung Medical Center, Seoul, Republic of Korea</p> <p>www.ncbi.nlm.nih.gov/pmc/articles/PMC5133233/</p>	<p>Prospective, randomized, unblinded.</p> <p>42 adult patients:</p> <ul style="list-style-type: none"> • 22 received IV PCA for post-op pain • 20 received wound infusion through bilateral ""inverse v"" shaped subfascial catheters 	<p>PainBuster with ropivacaine 0.5% at 4 ml/hr.</p> <p>-----</p> <p>Laparoscopic colorectal cancer surgery</p>	<p>Ropivacaine continuous infusion with an inverse "v" shaped bilateral, subfascial catheter placement showed significantly enhanced bowel recovery and analgesic efficacy was not different from IV PCA in LCRC surgery.</p>
12	<p>The ON-Q* pain management system in elective gynecology oncologic surgery: management of postoperative surgical site pain compared to intravenous patient-controlled analgesia</p> <p>Chung D, et al. Obstet Gynecol 2013; 56(2):93-101.</p> <p>Division of Gynecologic Oncology, Department of Obstetrics and Gynecology, Yonsei University College of Medicine. Seoul, Korea</p> <p>www.ncbi.nlm.nih.gov/pmc/articles/PMC3784090/</p>	<p>RCT</p> <p>20 patients:</p> <ul style="list-style-type: none"> • 10 received continuous ropivacaine via ON-Q* • 10 received IV PCA 	<p>ON-Q* Dual pump Catheters placed subfascial suprapertitoneal</p> <p>-----</p> <p>Adult gynecologic cancer surgery with lower mid-line incision</p>	<p>This study revealed that the ON-Q* pain management system is a more effective approach than IV PCA for acute postoperative surgical site pain relief after extended lower mid-line laparotomy in gynecologic cancer patients.</p>

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13	<p>Evaluation of novel local anesthetic wound infiltration techniques for postoperative pain following colorectal resection surgery: a meta-analysis</p> <p>Ventham NT, et al. Disease of the Colon and Rectum 2014 Feb; 57(2): 237-50.</p> <p>Department of Colorectal Surgery, Western General Hospital, Edinburgh, UK</p> <p>https://pubmed.ncbi.nlm.nih.gov/24401887/</p>	<p>Meta-analysis RCTs</p> <p>Included:</p> <ul style="list-style-type: none"> • 12 studies • 878 patients 	<p>Multiple, including ON-Q*</p> <p>-----</p> <p>Adults undergoing open or laparoscopic colorectal surgery</p>	<p>This meta-analysis suggests that novel LA blocks are more efficacious than placebo with routine analgesia and may be usefully integrated as part of a multimodal enhanced recovery program in colorectal surgery. Wound catheters provide effective analgesia for 48 hours, and although single administration LA techniques appear effective for the first 24 hours, data beyond 24 hours is lacking.</p>
14	<p>Local anesthetic infusion pump for pain management following open inguinal hernia repair: a meta-analysis</p> <p>Wu CC et al. Int J Surg 2014;12:245-50.</p> <p>Department of Urology, Taipei Medical University Hospital - Taipei, Taiwan</p> <p>www.ncbi.nlm.nih.gov/pubmed/24480240</p>	<p>Meta-analysis of RCTs</p> <p>5 RCTs:</p> <ul style="list-style-type: none"> • 288 patients 	<p>ON-Q* and others</p> <p>Previous reviewed studies (Lau, LeBlanc, Oakley, Sanchez, Schurr)</p> <p>-----</p> <p>Open inguinal hernia repair</p>	<p>In conclusion, the results of our meta-analysis revealed that applying a local anesthetic infusion pump following an inguinal hernia repair reduced postoperative pain compared to the placebo treatments during postoperative Day 1 to Day 4. However, the findings were based on a small body of evidence in which the methodological quality was not high. Based on the evidence that was reviewed, further research involving large RCTs might be warranted.</p>
15	<p>Application of continuous incisional infusion of local anesthetic after major pediatric urological surgery: prospective randomized controlled trial</p> <p>Hidas G et al. J of Ped Urology 2013;9;927-31.</p> <p>Urology, Children's Hospital - Orange County, CA</p> <p>www.ncbi.nlm.nih.gov/pubmed/25746712</p>	<p>Case Control</p> <p>40 patients:</p> <ul style="list-style-type: none"> • 20 pts: ON-Q* • 20 pts: IV analgesia 	<p>ON-Q* Fixed Flow, 1-4 ml/hr 0.25% bupivacaine</p> <p>-----</p> <p>Major urological procedures</p>	<p>This retrospective evaluation of continuous infusion of local anesthesia using the ON-Q* pump system was associated with a decrease in the postoperative pain and systemic narcotic and analgesic usage after major pediatric urologic surgery. This occurred without an increase in local wound infection, a delay of healing, or systemic complications. This retrospective study should provide the rational base for conducting a randomized control trial in order to establish the validity of this technology as a superior option for postoperative pain management in children undergoing abdominal surgery.</p>
16	<p>Local delivery of bupivacaine in the wound reduces opioid requirements after intraabdominal surgery in children</p> <p>Hermansson O et al. Pediatr Surg Int 2013;29: 451-4.</p> <p>Pediatric Surgery, University Children's Hospital - Uppsala, Sweden</p> <p>www.ncbi.nlm.nih.gov/pubmed/23483343</p>	<p>RCT, double-blind, placebo controlled</p> <p>33 children (6 months-13 y/o)</p> <p>Bupivacaine dosing:</p> <ul style="list-style-type: none"> • <9 kg (0.2 mg/kg/h) • >9 kg (0.4 mg/kg/h) 	<p>ON-Q* with Soaker 100-250 ml at 1-2 ml/hr</p> <p>-----</p> <p>Enterostomy closure, open gastrostomy or ureteral reimplantation</p>	<p>In conclusion, continuous infusion of bupivacaine in the abdominal wound was effective in reducing postoperative pain in children. It significantly reduced the need for additional opioids and can be considered for postoperative pain management in children.</p>

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17	<p>ON-Q* pump for pain control after orbital implant surgery</p> <p>Samimi DB et al. Ophthal Plast Reconstr Surg. 2014 Sep-Oct;30(5):396-9</p> <p>Ophthalmology, University of Southern California - Los Angeles, CA</p> <p>www.ncbi.nlm.nih.gov/pubmed/24777268</p>	<p>Retrospective, non-comparative consecutive case review</p> <p>20 patients</p>	<p>ON-Q* pump and SilverSoaker catheter</p> <p>-----</p> <p>Enuclation, evisceration, or secondary orbital implantation</p>	<p>The ON-Q* pain pump is widely available, low cost, and requires minimal patient manipulation for the use in orbital implant surgery. The device was safe and appeared to minimize postoperative pain in the authors' case series.</p>
18	<p>Post-operative pain control for burn reconstructive surgery in a resource-restricted country with subcutaneous infusion of local anesthetics through a soaker catheter to the surgical site: preliminary results</p> <p>Fuzaylov G, et al. Burns 2015 Dec; 41 (8):1811-15.</p> <p>MD, Harvard Medical School, Massachusetts General Hospital. USA</p> <p>https://pubmed.ncbi.nlm.nih.gov/26188896/</p>	<p>RCT</p> <p>109 patients:</p> <ul style="list-style-type: none"> • 45 received continuous procaine infusion for 48 hrs; controls received standard post-op pain control. 	<p>ON-Q*</p> <p>-----</p> <p>Adult and pediatric patients (age 12-65) undergoing split thickness skin grafts from lateral thigh.</p>	<p>Our Ukrainian colleagues now have a method of objective pain assessment and a new technique in pain management. With assessment linked to intervention, improvement in post-operative pain can be expected.</p>
19	<p>Comparison between systemic analgesia, continuous wound catheter analgesia and continuous thoracic paravertebral block: a randomized, controlled trial of postthoracotomy pain management</p> <p>Fortier S, et al. Eur J Anaesthesiol 2012; 29: 524-30.</p> <p>MD. Department of Anaesthesia. Polyclinique duval de Saone. Macon, France.</p> <p>https://pubmed.ncbi.nlm.nih.gov/22914044/</p>	<p>RCT</p> <p>140 patients:</p> <ul style="list-style-type: none"> • PCA morphine only (n=50) vs. thoracic paravertebral block (TPVB) (n=44) vs. Continuous wound catheter infusion (CWC) (n=46) 	<p>ON-Q* PainBuster Dual catheters for CWC group. One catheter placed at pericostal sutures and the other above the fascia</p> <p>-----</p> <p>Adult undergoing thoracotomy for pulmonary disease</p>	<p>Our results support the efficacy of TPVB for pain management after thoracotomy, at rest and after coughing. These results confirm the preference for TPVB over epidural analgesia in postthoracotomy pain care. CWC failed to decrease pain and morphine consumption and performed no better than placebo.</p>
20	<p>Continuous peripheral nerve block compared with single-injection peripheral nerve block: a systematic review and meta-analysis of randomized controlled trials</p> <p>Bingham A et al. Regional Anesth and Pain Medicine 2012;37:583-594.</p> <p>Department of Anesthesiology - Columbia University, New York, NY</p> <p>www.ncbi.nlm.nih.gov/pubmed/23080349</p>	<p>Meta-analysis 21 RCT</p> <p>712 patients</p>	<p>ON-Q* and other devices</p> <p>-----</p> <p>CPNB (orthopedic and breast)</p>	<p>Compared with siPNBs, cPNBs were associated with improved pain control, decreased need for opioid analgesics, less nausea, and greater patient satisfaction. The effect of cPNBs on other clinically relevant outcomes, such as complications, long-term functional outcomes, or costs, remains unclear.</p>

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21	<p>Surgically placed wound catheters (SPWC) and local anaesthetic infusion in breast surgery: efficacy and safety analysis</p> <p>Raghavendra, GKG et al. Breast Disease 2011/2012; 33:1-8.</p> <p>Clinical Research Fellow, Wansbeck General Hospital - Ashington, UK</p> <p>www.ncbi.nlm.nih.gov/pubmed/21965305</p>	<p>Meta-analysis 4 RCT</p> <p>147 patients</p>	<p>ON-Q* and equivalent</p> <p>-----</p> <p>Breast surgery</p>	<p>Surgically placed wound catheters and local anaesthetic infusion is clinically safe in a wide range of surgical procedures on the breast and there appears to be a trend towards improved post operative pain relief. The studies analyzed in this review have several important drawbacks such as inadequate power to detect significant differences (none of them included more than 50 patients). A well designed RCT of patients undergoing breast surgery with an adequate number is of patients required to emphatically demonstrate if the operative site infusion with local anaesthetic solution postoperatively is safe and efficacious compared to opioid based regimens alone for post operative pain relief.</p>
22	<p>A continuous infusion fascia iliaca compartment block in hip fracture patients: a pilot study</p> <p>Dulaney-Cripe E et al. J Clin Med Res 2012;4: 45-48.</p> <p>Surgeon, Wright State University - Dayton OH</p> <p>www.ncbi.nlm.nih.gov/pubmed/22383926</p>	<p>Prospective</p> <p>40 patients</p>	<p>ON-Q*</p> <p>-----</p> <p>Hip fracture CPNB</p>	<p>Overall, it has been noticed that the reduction in opioid usage in this elderly patient population, with an average age of seventy-five years has produced alert and mobile patients often as early as postoperative day one. The length of stay has decreased along with the average pain score in the pilot sample of forty-two patients.</p>
23	<p>ON-Q* pain pump versus epidural for postoperative analgesia in children</p> <p>Pontarelli EM et al. Pediatric Surgery International 2013; 29: 1267-71.</p> <p>Pediatric Surgery, Children's Hospital - Los Angeles, CA</p> <p>www.ncbi.nlm.nih.gov/pubmed/23860616</p>	<p>Retrospective Review</p> <p>136 patients 4-14 y/o</p> <ul style="list-style-type: none"> • 70 patients: epidural • 66 patients: ON-Q* 	<p>ON-Q*</p> <p>-----</p> <p>Variety of surgical procedures and incisions</p>	<p>The ON-Q* pain pump is an effective method for postoperative pain control, without the inherent risks of epidural catheters.</p>
24	<p>Continuous adductor canal blocks are superior to continuous femoral nerve blocks in promoting early ambulation after TKA</p> <p>Mudumbai SC, et al. Clin Orthop Relat Res 2014; 472(5): 1377-83.</p> <p>Dept. of Anesthesiology, Stanford University School of Medicine, Stanford, CA. USA</p> <p>www.ncbi.nlm.nih.gov/pubmed/23897505</p>	<p>Retrospective therapeutic study</p> <p>168 patients:</p> <ul style="list-style-type: none"> • 102 pts had femoral nerve block • 66 pts had adductor canal block 	<p>ON-Q* with ONDemand with ropivacaine 0.2% at 6 ml/hr + patient-controlled bolus of 5 ml with 30 minute lockout.</p> <p>-----</p> <p>TKA</p>	<p>Adductor canal CPNB may promote greater early postoperative ambulation compared to femoral CPNB after TKA without a reduction in analgesia. Future randomized studies are needed to validate our major findings.</p>

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25	<p>Use of continuous local anesthetic infusion in management of postoperative split-thickness skin grafts donor site pain</p> <p>Hernandez J et al. J Burn Care Res 2012;34 (4):e257-62.</p> <p>Residency program-Bridgeport Hospital, Yale-New Haven-Bridgeport, CT</p> <p>www.ncbi.nlm.nih.gov/pubmed/23271060</p>	<p>Case series</p> <ul style="list-style-type: none"> • 8 patients 	<p>ON-Q*</p> <p>-----</p> <p>Donor site</p>	<p>Continuous local anesthetic infusion is technically feasible and may represent an option for postoperative donor site pain control after STSG harvesting. Relative cost-benefit of the technique remains to be determined.</p>
26	<p>Outpatient analgesia via paravertebral peripheral nerve block catheter and pump - a case series</p> <p>Visoiu M. Paediatr Anaesth. 2014 Aug;24(8):875-8.</p> <p>Department of Anesthesiology, Children's Hospital of Pittsburgh of University of Pittsburgh Medical Center, Pittsburgh, PA, USA</p> <p>www.ncbi.nlm.nih.gov/pubmed/24815589</p>	<p>Case report</p> <ul style="list-style-type: none"> • 5 children • Paravertebral block 	<p>ON-Q* pump (SAF) 4-6ml/hr 0.2% ropivacaine</p> <p>-----</p> <p>Iliac crest bone harvesting Post-op. Discharge home.</p>	<p>No complications were reported related with these catheters, and the patients reported very high pain control satisfaction scores. Outpatient L2PVBC can be beneficial as part of a multimodal analgesia strategy in selected pediatric patients.</p>

ABBREVIATIONS

AE	Adverse Event	AXR	Abdominal X-ray	BMI	Body Mass Index	CXR	Chest X-ray
EN	Enteral Nutrition	EMTD	Electromagnetic Tube Placement Device	ICU	Intensive Care Unit	KUB	Kidney, Ureter, Bladder Radiograph
LOE	Level of Evidence	LVAD	Left Ventricular Assist Device	Min	Minutes	NGT	Nasogastric Tube
NS	Not Significant	Pt	Patient	RD	Registered Dietitian	RN	Registered Nurse
RVAD	Right Ventricular Assist Device	SBFT	Small Bowel Feeding Tube	Sec	Seconds	Std	Standard
UGI	Upper Gastrointestinal	YO	Year Old				

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