Fascia iliaca compartment block (FICB) v perioperační péči u operací kolenního a kyčelního kloubu

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The technique resulted in blocking the three main lumbar plexus nerves supplying the thigh in more than 90% of procedures.
• „...sensory blockade of the femoral nerve is provided by both block procedures equally, that of the LFC is obtained both more rapidly and consistently with the fascia iliaca compartment block. “
Left middle finger on right ASIS

Dividing distance from ASIS to PT into thirds, using index fingers.

Right middle finger on right PT

Femoral nerve under fascia iliaca

Femoral branch of genito-femoral nerve

Femoral artery

Femoral vein

Saphenous vein
FICB - východiska

- Inervace mediální, přední a laterální části stehna je ze segmentů L2-4

- Kompartment ohraničený iliakální fascií obsahuje tři ze čtyř hlavních nervů pro DKK

- Aplikované lokální anestetikum celkem spolehlivě dosahuje femorálního a LFCN, dosažení obturatorního nervu je velice nespoléhlivé
• Perioperační analgezie pro pacienty se zlomeninou krčku a diafýzy femuru
• Součást pooperační analgezie u chirurgie kyčelního kloubu – v závislosti na operačním přístupu
• Analgezie při amputacích nad úrovní kolene
• Analgezie při repozici a sádrové fixaci zlomenin femuru u dětí
• Analgezie pro chirurgii kolenního kloubu (kombinace z blokádou n.ischiadicus a případně doplnění n.obturatosius)
• Analgezie při operacích bérce a nohy při vědomí s použitím turniketu
• Analgezie při odebírání kožních štěpů u popálenin…
kontraindikace

• Obecné pro PNB a RA

• Specifická pacient po femorálním bypassu
A modified fascia iliaca compartment block has significant morphine-sparing effect after total hip arthroplasty.

Stevens M, Harrison G, McGrail M
Intrathecal opioid versus ultrasound guided fascia iliaca plane block for analgesia after primary hip arthroplasty: study protocol for a randomised, blinded, noninferiority controlled trial


Conclusions: There are no studies to date comparing ultrasound guided fascia iliaca block with spinal morphine for pain control after hip arthroplasty. If the ultrasound guided fascia iliaca block provides pain relief which is not inferior to spinal morphine, then morphine could be removed from the spinal injection. This could reduce side effects and improve patient safety.
Influence of the fascia iliaca compartment block on postoperative cognitive status in the elderly.


„Sixty-five patients were included: 34 in NKT group and 31 in KT group. MMSE scores were higher in the KT group at day 1 and day 2 (p=0.01 and 0.0004, respectively). POCD was less frequent in group KT at day 2 (6 % vs 41 % ; p=0.001) and pain scores were lower during the first 48 hours (p=0.03).“
Incisional continuous fascia iliaca block provides more effective pain relief and fewer side effects than opioids after pelvic osteotomy in children.

<table>
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<tr>
<th>Author, date and country</th>
<th>Patient group</th>
<th>Study type (level of evidence)</th>
<th>Outcomes</th>
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<th>Study Weaknesses</th>
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<tr>
<td>Sandrine L, Gros T et al 2003 France</td>
<td>27 patients with a suspected Femur fracture based on History and clinical findings. Mean age 26 y. Excluded &lt;18 years, GCS&lt;15.</td>
<td>Prospective observational study.</td>
<td>Pain score prior to Block, at 10 minutes and on arrival to Trauma centre.</td>
<td>The pain score decreased 10 minutes after the block as well as on arrival to trauma centre (45 minutes median time) P=0.00001. Only 1 patient required supplemental analgesia. No adverse complications.</td>
<td>Technique performed by Anaesthetists experienced in regional blocks. No Comparison group available to confirm the superiority of the FICB.</td>
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<tr>
<td>Caral-Couto J, McVeie J et al. 2004 UK</td>
<td>30 consecutive patients with NOF fracture including those with dementia (12 patients). Mean age 77, 30</td>
<td>Prospective consecutive observational study.</td>
<td>Pain assessed in the form of a Sitting Scale and Pain-free passive flexion of the hip. Also used 10-point visual analogue scale (VAS). Measurements were done pre- and 1h post block.</td>
<td>Post block 24 patients managed a Sitting Score of &gt;2 (Semirecumbent using &gt;2 pillows) as compared to none prior to block. Flexion improved by mean 44 degree post block. VAS improved from 7.2 to 3.2 post block. P-value &lt; .001 for all findings.</td>
<td>The lack of blinding and of a control group can enforce a placebo effect. The objective assessment of pain was open to bias as patients were examined by the investigators.</td>
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<tr>
<td>Monzon G and Iserton K et al. 2006 Argentina</td>
<td>63 adult patients mean age 73.5 with confirmed NOF fracture on X-Ray. A FIB was administered by ED Physician.</td>
<td>Prospective consecutive observational study.</td>
<td>Pain relief as measured on VAS at 15 min, 2h, 8h. Also subjectively assessed sensory loss over the affected skin dermatomes.</td>
<td>Significant decrease in the level of pain from 15 min to 8 h post Block.</td>
<td>No information available to who measured the pain scores and how. Few elderly patients with NOF fracture will have dementia that will render any pain assessment almost impossible.</td>
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<tr>
<td>Foss N, Kristensen B et al 2007 Denmark</td>
<td>24 patients in FIB group vs. 24 in Morphine group</td>
<td>RCT. Double-blinded setup</td>
<td>Pain at rest and on movements at 30, 60 and 120 minutes post analgesia measured using a verbal ranking scale (VRS).</td>
<td>FIB provided superior pain relief to im Morphine both at rest and on 15 degree lift. Patients in the Morphine group were more sedated. No adverse incidents in the FIB group.</td>
<td>Randomization did not fully succeed as there was higher proportion of male patients in the FIB group. The gold standard for Opioids analgesia is an iv titrated regime whereas the control group in the study received im morphine.</td>
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<tr>
<td>Obidaya A, 2008, UK</td>
<td>35 Patients, aged 62-102 with NOF Fracture evident on X-Rays. Exclusion criteria included dementia and gross obesity as both impacted the assessment of the pain and the execution of the block respectively.</td>
<td>Prospective observational study</td>
<td>Pain assessed at presentation and 15 min, 2h, 8h and 24h post block using VA scale.</td>
<td>Pain score at presentation 8-10. 54% had pain score of 4 or less 15 min post block, 72% and 77% had pain score of 4 or less 2 and 4 h post block respectively. No reported complication.</td>
<td>Pain score assessed by the operators, who were 2 trained pain specialist nurses, who also performed the block. Pain score of 4 or less in 16 patients at 24h. Bupivacaine duration of action up to 20h.</td>
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<tr>
<td>Yun M, 2009, Korea</td>
<td>40 patients aged 26-88 divided in two groups: FICB vs. IV Fentanyl group. The intervention happened just prior to placing the patients for their spinal block.</td>
<td>Prospective randomised clinical study</td>
<td>Pain score assessed on VAS prior to block, 20 min post block and during handling the patient into the lateral decubitus position. Patients with block failure excluded. Pain score in the Fentanyl group noted at presentation, 2min post analgesia and during positioning.</td>
<td>VAS scores at 20 min post FICB and 2 min post IV Fentanyl were no different but decreased from the baseline score in both groups. The main VAS score during positioning and 6 h post surgery was lower in the FICB than the IV group. (2 vs 4/ 2.9 vs 3.5). No additional analgesia needed in the FICB.</td>
<td>Blocks performed by senior anaesthetist. There was no documentation of analgesia prior to intervention. Recording the scores of pain couldn’t be blinded when a patient is obviously under Fentanyl influence.</td>
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Modified Continuous Femoral Three-in-One Block for Postoperative Pain After Total Knee Arthroplasty

Sugantha Ganapathy, FRCA, FRCPC*, Ronald A. Wasserman, FRCPC, DABA

(Anesth Analg 1999;89:1197–1202)
Computed tomography scan at the level of L4 vertebra shows the proximal extent of the contrast injected through the catheter (white arrows) surrounding the anterolateral aspect of psoas muscle. The catheter (black, curved arrow) is just barely perceivable as a small dark dot within the contrast pool.

Modified Continuous Femoral Three-in-One Block for Postoperative Pain After Total Knee Arthroplasty
Kontin. blok pro TEP kolene

- „The catheter tips, located superior to the upper third of the sacroiliac joint in the psoas sheath, is ideally located."

- Forty percent of the catheters evaluated were ideally located. Ideal location and use of 0.2% B resulted in 100% success of blockade of all three nerves.

- The S1 root was blocked in up to 76% of patients.

*Modified Continuous Femoral Three-in-One Block for Postoperative Pain After Total Knee Arthroplasty*
Adequate analgesia after knee surgery may require *block of S1* as well as the femoral, lateral femoral cutaneous, and obturator nerves. To achieve this, two factors seem to be important; the tip of the catheter should lie at the *level of the transverse processes of L4 or L5 vertebra*, and an adequate *volume* and *concentration* of local anesthetic should be delivered to ensure blocking at least two nerve roots above and below the level of the catheter tip.

Continuous fascia iliaca block with 0.2%B reduces opioid requirements and improves range of motion only in the immediate postoperative period. This block may be useful when continuous passive motion is initiated in the early postoperative period, because it improves analgesia during activity.
Jak „dopilovat“ FICB pro TEP kolene?

„The advantage of a FNB in this major joint surgery seems to be the analgesic effect on pain during mobilization. In contrast, more recently, Wang et al. (17) reported effective analgesia at rest and during rehabilitation provided by a single-injection FNB compared with a placebo FNB, which may reflect the variable incidence of effective obturator blockade after a FNB.“

„The addition of an obturator nerve block to FNB improves postoperative analgesia in the rest.“
FIC block - UGRA

- n.cut.fem.lateralis
- n.femoralis
- (n.obturatorius)

Frekv: 10-12MHz
Hloubka: cca 4 cm

+/- 40 – 50 ml LA

Je možné upravit po cca 10 ml aplikace LA polohu jehly více rostrálně nebo připojit kompresi pod místem vpichu
FIC block - UGRA

- Tensor Fasciae Latae
- Gluteus Medius
- Gluteus Minimus
- External oblique
- Transversus Abdominis
- Lateral Cut Nerve of the Thigh
- AIIS
- Iliacus
- Femoral Nerve
- Colon
- Psoas
- Hip
- Ilium
FIC block - UGRA

- fascia iliaca
- needle
- extrapelvic local anaesthetic
- iliacus muscle
- AIIS

intrapelvic local anaesthetic
FIC block - UGRA
FIC block - UGRA
FIC block – UGRA kontinuální
The Efficacy of Continuous Fascia Iliaca Compartment Block for Pain Management in Burn Patients Undergoing Skin Grafting Procedures

Olivier Cuignet, MD*, Jean Pirson, MD*, Jenna Boughrouph, MD†, and Diane Duville, FRCC*
FIC block „uzávěry“

- FICB je velmi jednoduchá metoda
- Použití UZ nám pomůže kontrolovat distribuci LA zavedení katétru.
- Dosáhně-li LA (katétr) nad horní 1/3 SI kloubu je vysoká úspěšnost blokády n.obturatorius a dokonce kořen S1
- Indikace k použití FICB jsou široké nejen co do typu chirurgických výkonů v oblasti kyčle, stehna a kolene, ale i co do použití v časové ose od přednemocniční do pooperační fáze.
Pokrok nelze zastavit

Děkuji za pozornost