

FAKULTNÍ NEMOCNICE BRNO  
A LÉKAŘSKÁ FAKULTA  
MASARYKOVY UNIVERZITY



**KLINIKA DĚTSKÉ  
ANESTEZILOGIE  
A RESUSCITACE**

# Top 10 publikací za rok 2019 v algeziologii

Ivo Křikava

KDAR & OLB FN Brno, LF MU

XXVI. kongres ČSARIM  
Brno 2019



M U N I  
M E D

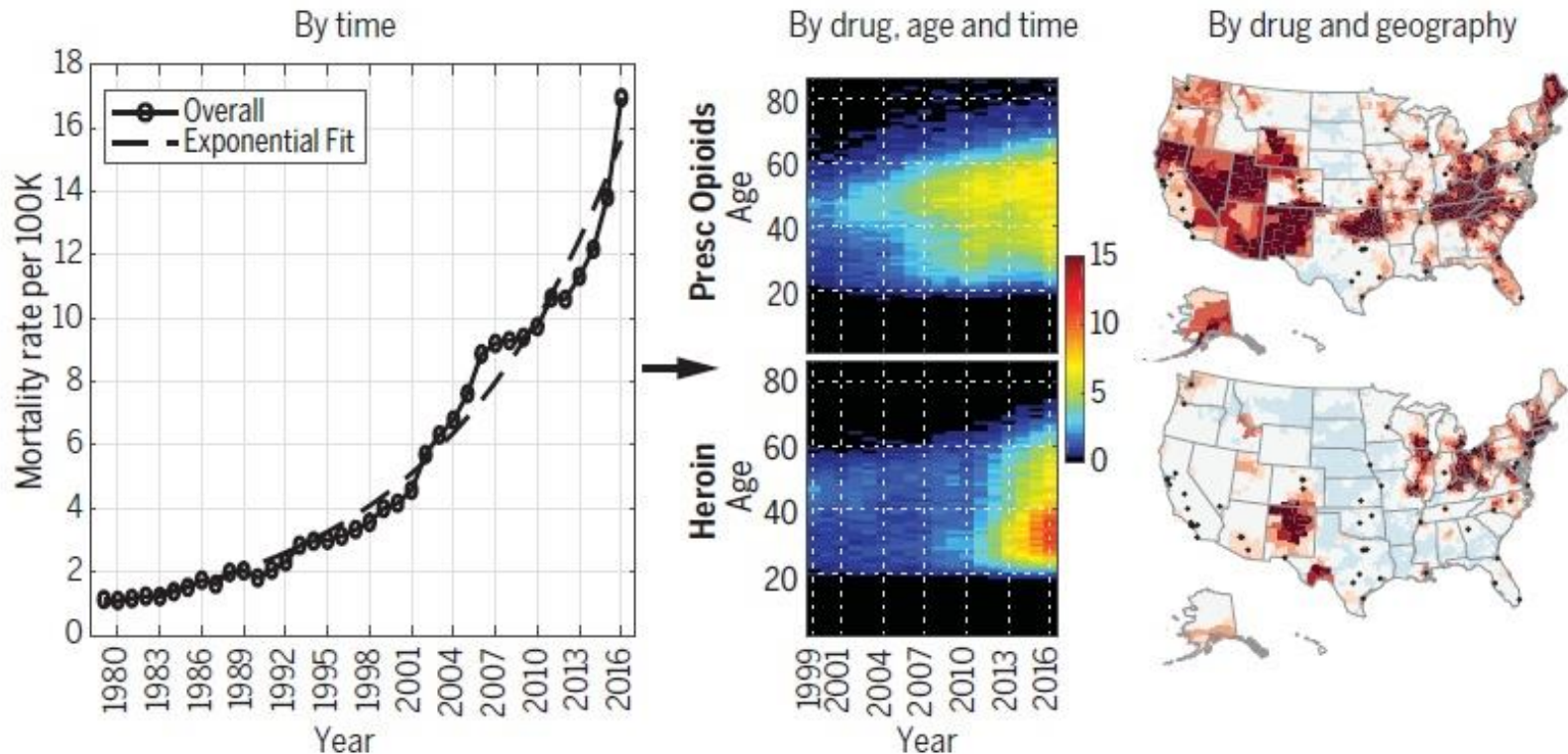
# Changing dynamics of the drug overdose epidemic in the United States from 1979 through 2016

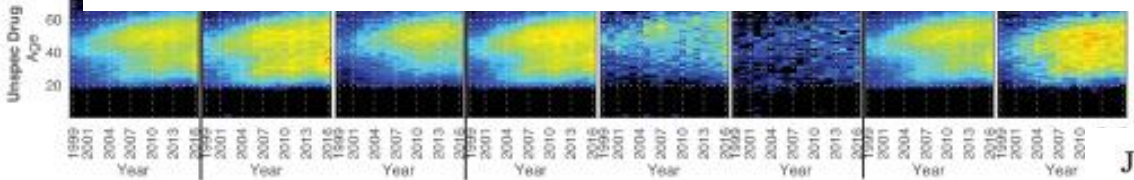
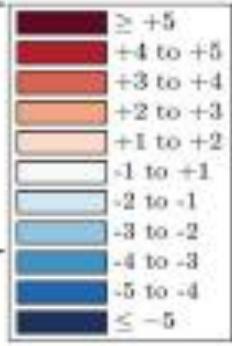
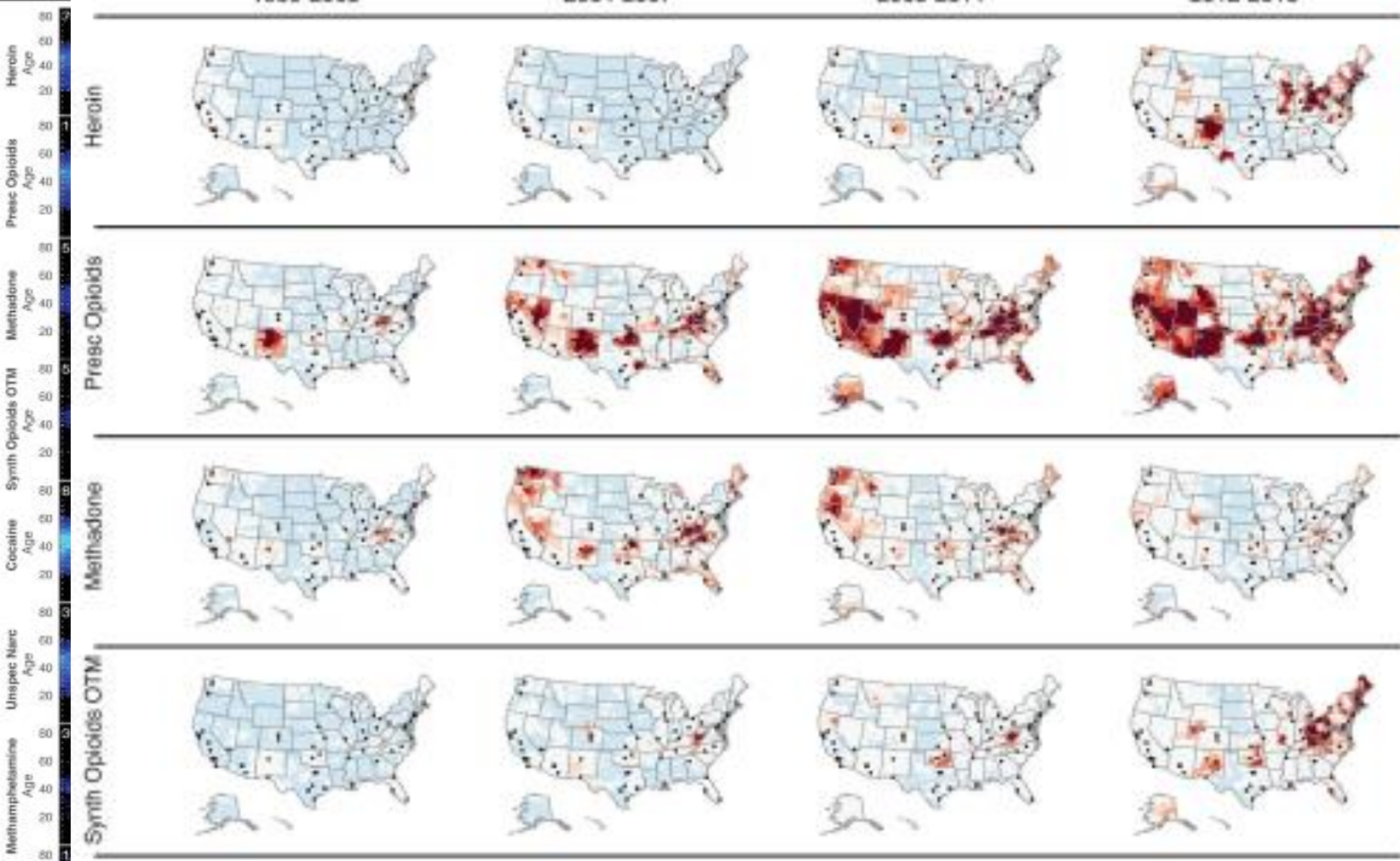
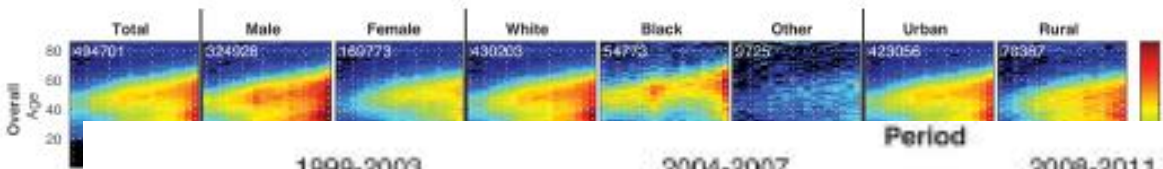
Hawre Jalal, Jeanine M. Buchanich, Mark S. Roberts, Lauren C. Balmert, Kun Zhang, Donald S. Burke\*

Jalal *et al.*, *Science* **361**, 1218 (2018) 21 September 2018

- 599 255 úmrtí

## Overdose Mortality Rate





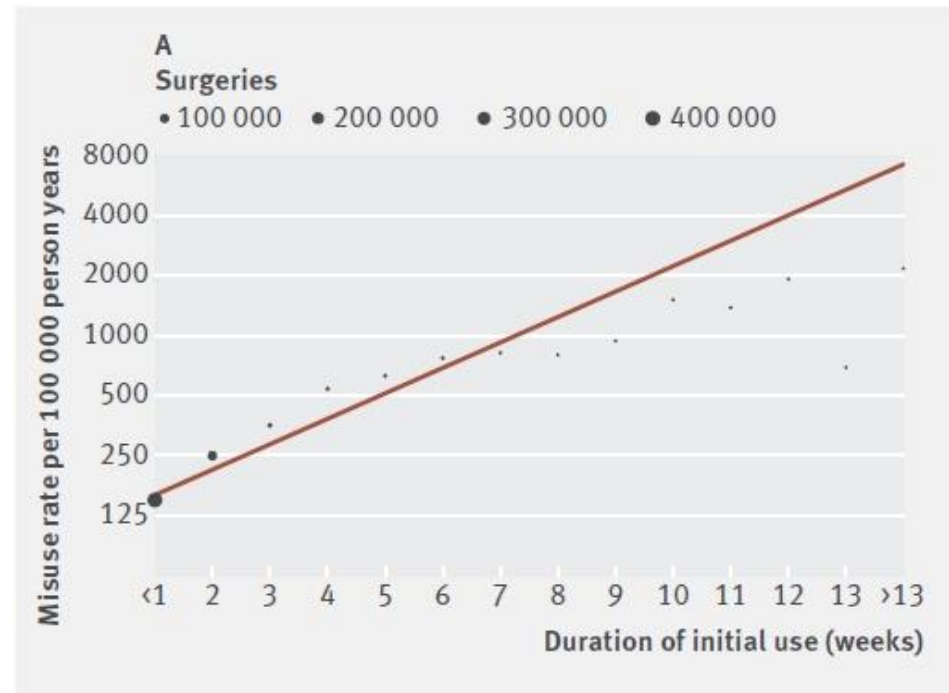


# Postsurgical prescriptions for opioid naive patients and association with overdose and misuse: retrospective cohort study

Gabriel A Brat,<sup>1,2</sup> Denis Agniel,<sup>1</sup> Andrew Beam,<sup>1</sup> Brian Yorkgitis,<sup>3</sup> Mark Bicket,<sup>4</sup> Mark Homer,<sup>1</sup> Kathe P Fox,<sup>5</sup> Daniel B Knecht,<sup>5</sup> Cheryl N McMahill-Walraven,<sup>5</sup> Nathan Palmer,<sup>1</sup> Isaac Kohane<sup>1</sup>

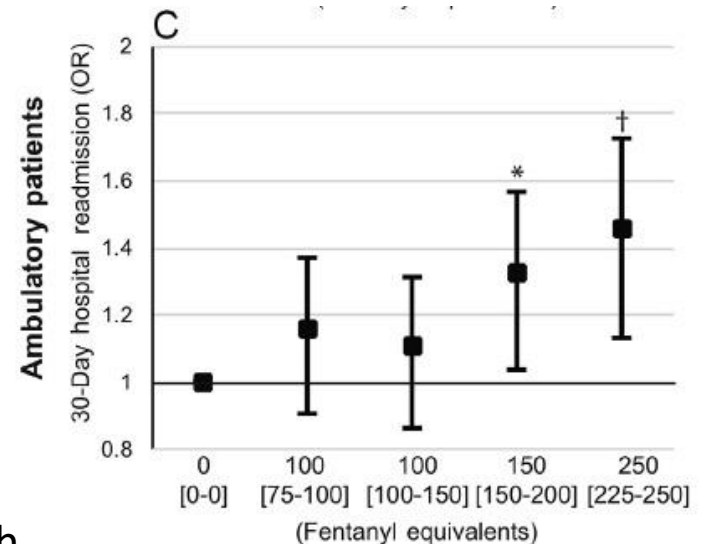
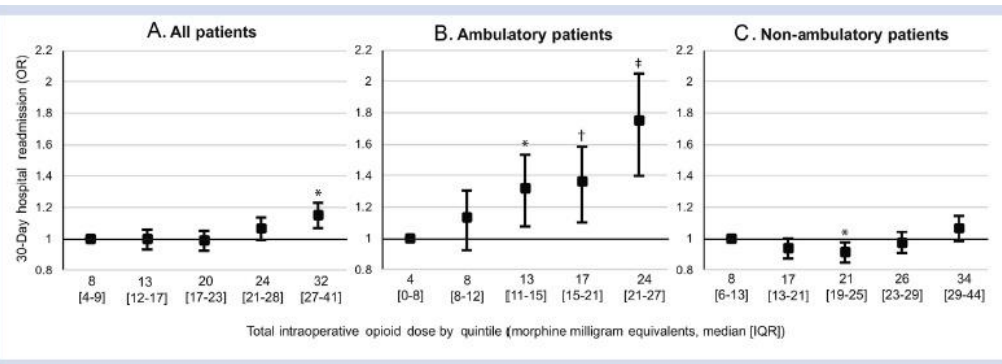
the **bmj** | *BMJ* 2018;360:j5790 | doi: 10.1136/bmj.j5790

- 1 015 116 pacientů
- 2008 – 2016
- každý týden zvýšil riziko o 34 %
- souvislost zneužívání opioidů souvisí spíše s délkou preskripce než s dávkou
- další rizikové faktory: BZD, hydromorfon, oxykodon
- bariatrická chirurgie, tabák, deprese



# Association between intraoperative opioid administration and 30-day readmission: a pre-specified analysis of registry data from a healthcare network in New England

D. R. Long<sup>1</sup>, A. L. Lihn<sup>1,2</sup>, S. Friedrich<sup>1</sup>, F. T. Scheffenbichler<sup>1</sup>, K. C. Safavi<sup>1</sup>, S. M. Burns<sup>1</sup>, J. C. Schneider<sup>3</sup>, S. D. Grabitz<sup>1</sup>, T. T. Houle<sup>1</sup> and M. Eikermann<sup>4,5,\*</sup>

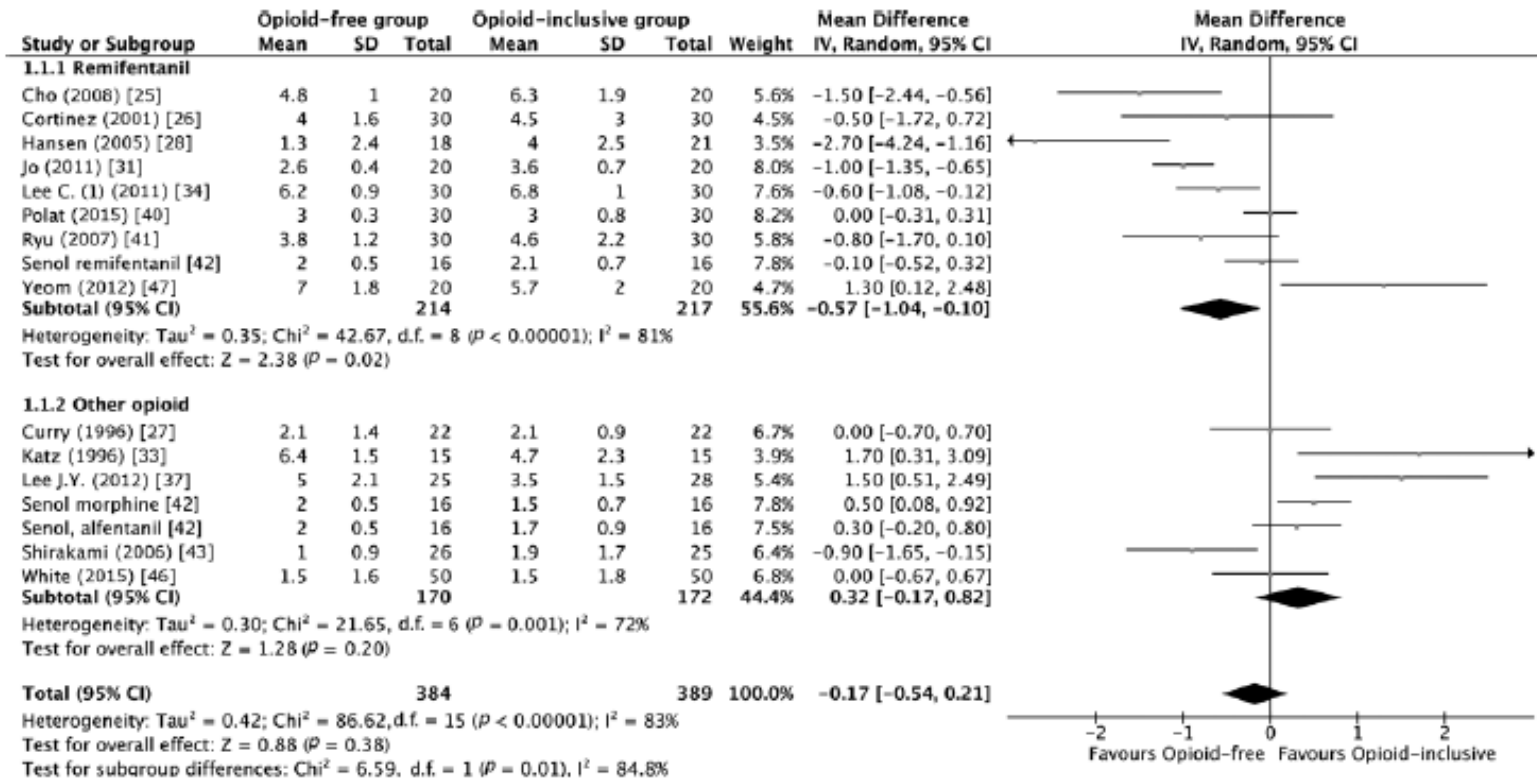


- 153 902 pacientů
- riziko u ambulantních pacientů po použití vyšších dávek opioidů je 3x vyšší v prvních 48 hodinách
- specifika anesteziologa

# Analgesic impact of intra-operative opioids vs. opioid-free anaesthesia: a systematic review and meta-analysis

J. Frauenknecht,<sup>1</sup> K. R. Kirkham,<sup>2</sup> A. Jacot-Guillarmod<sup>3</sup> and E. Albrecht<sup>4</sup>

Anaesthesia 2019, 74, 651-662



- systematický přehled a meta-analýza, 23 RCT, 1304 pacientů
- úroveň bolesti 2 hod. poop. v klidu byla srovnatelná, síla důkazu: vysoká
- bezopioidní anestezie snižuje riziko PONV a zkracuje pobyt na recovery



# Interventional Spine and Pain Procedures in Patients on Antiplatelet and Anticoagulant Medications (Second Edition)

*Guidelines From the American Society of Regional Anesthesia and Pain Medicine, the European Society of Regional Anaesthesia and Pain Therapy, the American Academy of Pain Medicine, the International Neuromodulation Society, the North American Neuromodulation Society, and the World Institute of Pain*

*Samer Narouze, MD, PhD,\* Honorio T. Benzon, MD,† David Provenzano, MD,‡ Asokumar Buvanendran, MD,§ José De Andres, MD,|| Timothy Deer, MD,\*\* Richard Rauck, MD,†† and Marc A. Huntoon, MD,‡‡*

**TABLE 1. Pain Procedures Classification According to the Potential Risk of Serious Bleeding**

| High-Risk Procedures                                    | Intermediate-Risk Procedures*   | Low-Risk Procedures*   |
|---|---|--|
| Spinal cord stimulation trial and implant               | Interlaminar ESIs (C, T, L, S)  | Peripheral nerve blocks  |
| Dorsal root ganglion stimulation                        | Transforaminal ESIs (C, T, L, S)  | Peripheral joints and musculoskeletal injections                             |
| Intrathecal catheter and pump implant                   | Cervical† facet MBNB and RFA  | Trigger point injections including piriformis injection                      |
| Vertebral augmentation (vertebroplasty and kyphoplasty) | Intradiscal procedures (C, T, L)  | Sacroiliac joint injection and sacral lateral branch blocks                  |
| Percutaneous decompression laminotomy                   | Sympathetic blocks (stellate, T, splanchnic, celiac, lumbar, hypogastric) | Thoracic and lumbar facet MBNB and RFA                                       |
| Epiduroscopy and epidural decompression                 | Trigeminal and sphenopalatine ganglia blocks                              | Peripheral nerve stimulation trial and implant‡                              |
|   |   | Pocket revision and implantable pulse generator/intrathecal pump replacement |

**TABLE 2. Half-lives of Commonly Administered Non-ASA NSAIDs**

| Agent                       | Half-life, h | Discontinuation Time 5 Half-lives, h | Recommended Discontinuation Time, d |
|-----------------------------|--------------|--------------------------------------|-------------------------------------|
| Diclofenac <sup>119</sup>   | 1–2          | 5–10                                 | 1                                   |
| Etodolac <sup>120</sup>     | 6–8          | 30–40                                | 2                                   |
| Ibuprofen <sup>121</sup>    | 2–4          | 10–20                                | 1                                   |
| Indomethacin <sup>122</sup> | 5–10         | 25–50                                | 2                                   |
| Ketorolac <sup>123</sup>    | 5–6          | 25–30                                | 1                                   |
| Meloxicam <sup>124</sup>    | 15–20        | 75–100                               | 4                                   |
| Nabumetone <sup>125</sup>   | 22–30        | 110–150                              | 6                                   |
| Naproxen <sup>126</sup>     | 12–17        | 60–85                                | 4                                   |
| Oxaprozin <sup>127</sup>    | 40–60        | 200–240                              | 10                                  |
| Piroxicam <sup>128</sup>    | 45–50        | 225–250                              | 10                                  |

**TABLE 5. Recommended Intervals of Discontinuation and Resumption of the NOACs and Pain Procedures**

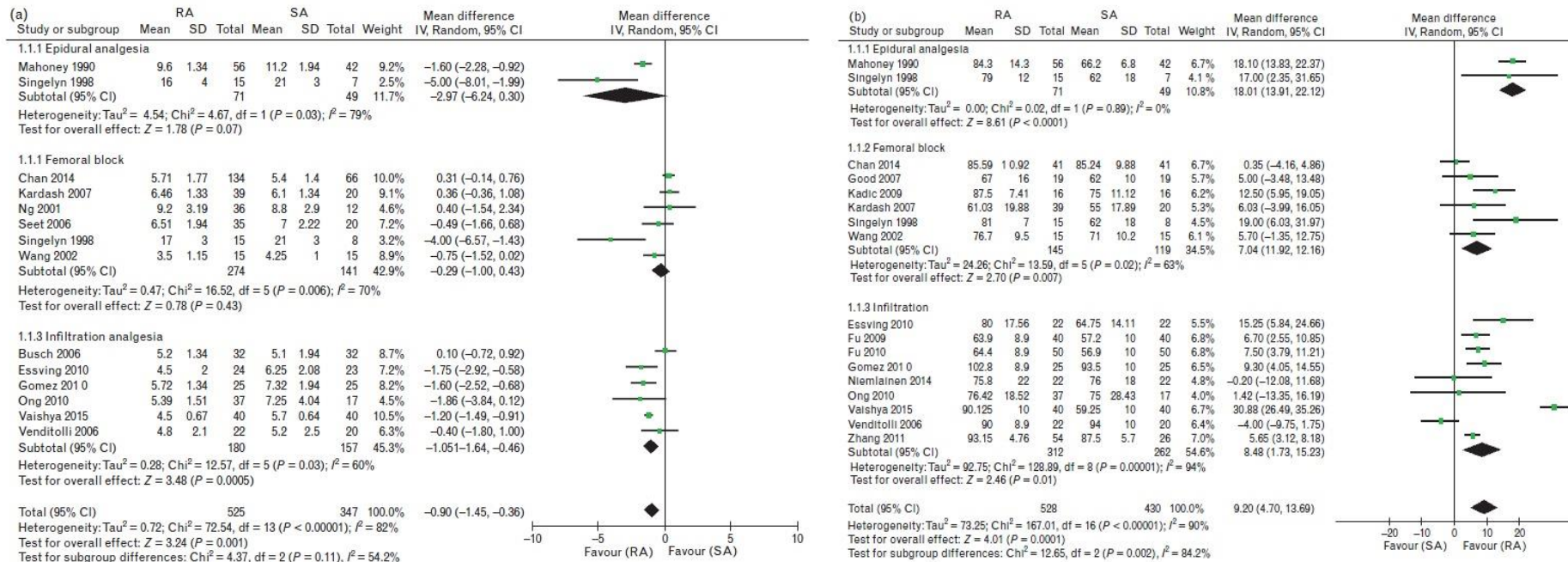
| Drug        | Half-life                       | Recommended Interval Between Stoppage of Drug and Pain Procedure (5 Half-lives)* | Recommended Interval Between Procedure and Resumption of Drug† |
|-------------|---------------------------------|--|--|
| Dabigatran  | 12–17 h<br>28 h (renal disease) | 4 d<br>5–6 d (patients with renal disease)                                       | 24 h   |
| Rivaroxaban | 9–13 h                          | 65 h (3 d)   | 24 h   |
| Apixaban    | 15.2 ± 8.5 h                    | 75 h (3 d)   | 24 h   |
| Edoxaban    | 9–14 h                          | 70 h (3 d)   | 24 h   |



## Functional recovery after knee arthroplasty with regional analgesia

### A systematic review and meta-analysis of randomised controlled trials

Thomas Osinski, Samir Bekka, Jean-Philippe Regnaux, Dominique Fletcher and Valeria Martinez



- systematický přehled a meta-analýza 13 RCT, 872 pacientů
- primární cíl: srovnání délky pobytu v nemocnici a pohyb v kolenní 4. poop.den
- NNT pro délku pohybu: 4, NNT pro pohyb v kolenní: 2
- síla důkazu: slabá

# Duloxetine Reduces Pain and Improves Quality of Recovery Following Total Knee Arthroplasty in Centrally Sensitized Patients

A Prospective, Randomized Controlled Study

In Jun Koh, MD, PhD, Man Soo Kim, MD, Suenen Sohn, MD, Kwang Yun Song, MD, Nam Yong Choi, MD, PhD, and Yong In, MD, PhD

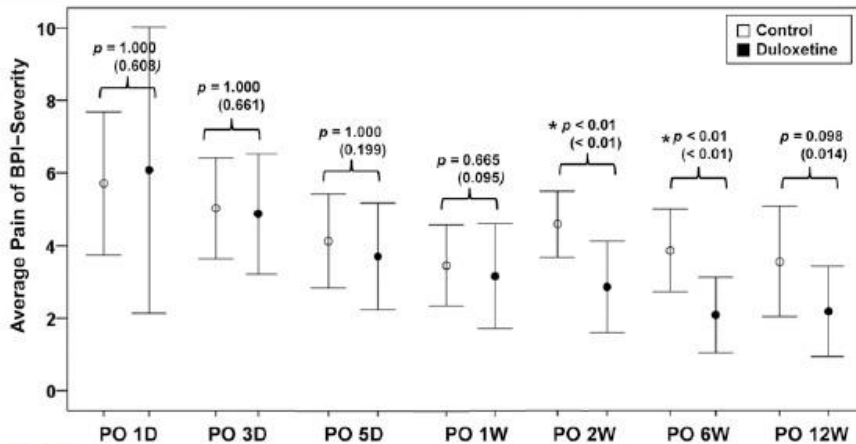
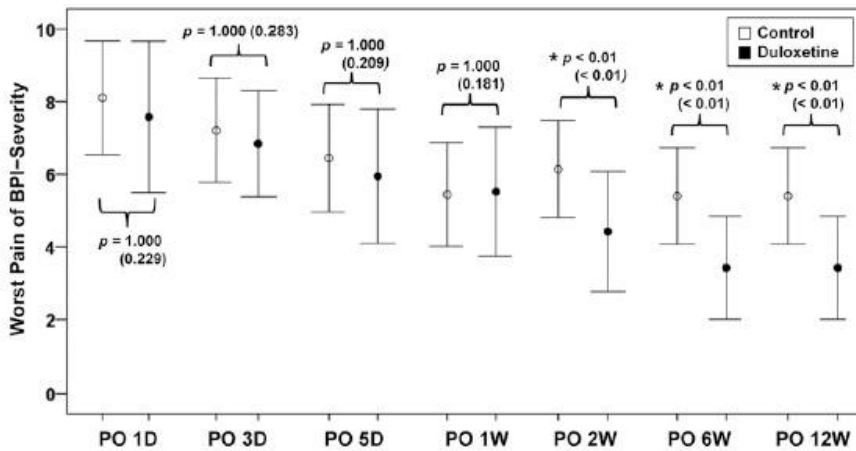


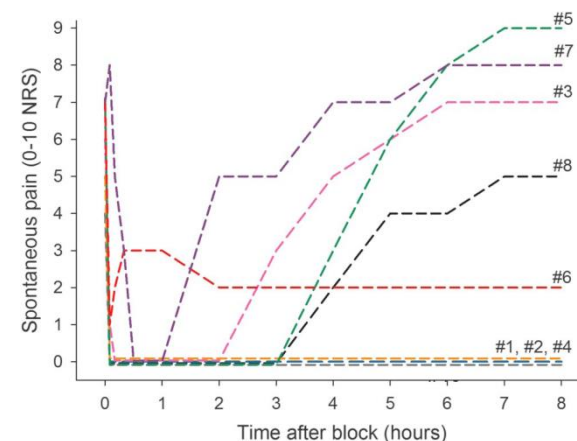
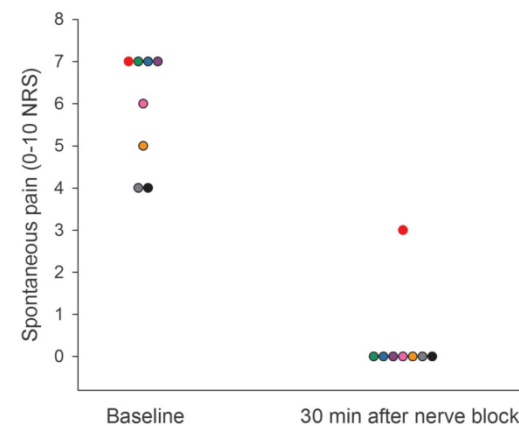
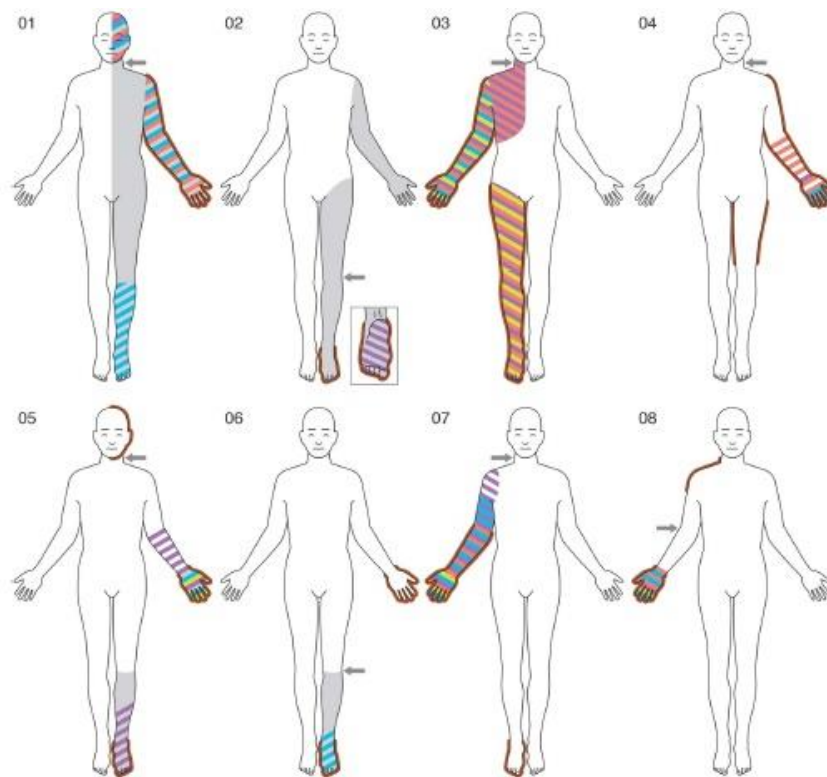
Fig. 2-A



- 40 + 40 pacientů
- 30 mg duloxetinu denně v kont.
- obě skupiny:
  - oxykodon 10 mg 2xd
  - celecoxib 200 mg 2xd
  - tramadol/paracetamol 37,5 mg/650 mg 2xd

## How central is central poststroke pain? The role of afferent input in poststroke neuropathic pain: a prospective, open-label pilot study

Simon Haroutounian<sup>a,b,\*</sup>, Andria L. Ford<sup>c</sup>, Karen Frey<sup>a</sup>, Lone Nikolajsen<sup>d,e</sup>, Nanna B. Finnerup<sup>d,f</sup>, Alicia Neiner<sup>a</sup>, Evan D. Kharasch<sup>b,g</sup>, Pall Karlsson<sup>d</sup>, Michael M. Bottros<sup>a,b</sup>



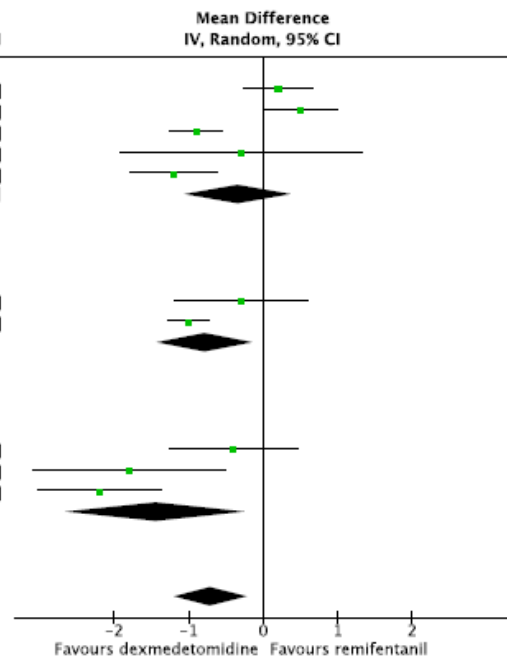


# Intra-operative analgesia with remifentanil vs. dexmedetomidine: a systematic review and meta-analysis with trial sequential analysis

S. Grape,<sup>1</sup> K. R. Kirkham,<sup>2</sup> J. Frauenknecht<sup>3</sup> and E. Albrecht<sup>4</sup>

Anaesthesia 2019, 74, 793-800

| Study or Subgroup  | Dexmedetomidine |      |            | Remifentanil |      |            | Weight        | Mean Difference<br>IV, Random, 95% CI |
|--|-----------------|------|------------|--------------|------|------------|---------------|---------------------------------------|
|  | Mean            | SD   | Total      | Mean         | SD   | Total      |               |                                       |
| <b>1.1.1 Laparoscopy</b>   |                 |      |            |              |      |            |               |                                       |
| Choi (2016) [24]   | 3.9             | 0.9  | 30         | 3.7          | 0.9  | 30         | 11.9%         | 0.20 [-0.26, 0.66]                    |
| Jung (2011) [28]   | 3.7             | 0.8  | 25         | 3.2          | 1    | 25         | 11.6%         | 0.50 [-0.00, 1.00]                    |
| Mogahed (2017) [33]  | 4               | 0.8  | 40         | 4.9          | 0.8  | 40         | 12.4%         | -0.90 [-1.25, -0.55]                  |
| Salman (2009) [38]   | 2.8             | 3.5  | 30         | 3.1          | 2.9  | 30         | 5.3%          | -0.30 [-1.93, 1.33]                   |
| Subasi (2017) [39]   | 4.3             | 0.9  | 20         | 5.5          | 1    | 20         | 11.1%         | -1.20 [-1.79, -0.61]                  |
| <b>Subtotal (95% CI)</b>   |                 |      | <b>145</b> |              |      | <b>145</b> | <b>52.4%</b>  | <b>-0.34 [-1.06, 0.37]</b>            |
| Heterogeneity: Tau <sup>2</sup> = 0.54; Chi <sup>2</sup> = 33.91, df = 4 (p < 0.00001); I <sup>2</sup> = 88% |                 |      |            |              |      |            |               |                                       |
| Test for overall effect: Z = 0.94 (p = 0.35)   |                 |      |            |              |      |            |               |                                       |
| <b>1.1.2 Ear, nose and throat surgery</b>  |                 |      |            |              |      |            |               |                                       |
| Lee (2013) [30]  | 1.9             | 1.7  | 32         | 2.2          | 2    | 34         | 9.1%          | -0.30 [-1.19, 0.59]                   |
| Polat (2015) [36]  | 2               | 0.25 | 30         | 3            | 0.75 | 30         | 12.7%         | -1.00 [-1.28, -0.72]                  |
| <b>Subtotal (95% CI)</b>   |                 |      | <b>62</b>  |              |      | <b>64</b>  | <b>21.9%</b>  | <b>-0.78 [-1.42, -0.15]</b>           |
| Heterogeneity: Tau <sup>2</sup> = 0.13; Chi <sup>2</sup> = 2.14, df = 1 (p = 0.14); I <sup>2</sup> = 53%     |                 |      |            |              |      |            |               |                                       |
| Test for overall effect: Z = 2.42 (p = 0.02)   |                 |      |            |              |      |            |               |                                       |
| <b>1.1.4 Other surgery</b>   |                 |      |            |              |      |            |               |                                       |
| Choi (2017) [25]   | 3.8             | 1.9  | 40         | 4.2          | 2    | 40         | 9.4%          | -0.40 [-1.25, 0.45]                   |
| Hwang (2015) [27]  | 3.3             | 2    | 19         | 5.1          | 2    | 18         | 6.8%          | -1.80 [-3.09, -0.51]                  |
| Rajan (2016) [37]  | 2.9             | 2.6  | 68         | 5.1          | 2.4  | 71         | 9.5%          | -2.20 [-3.03, -1.37]                  |
| <b>Subtotal (95% CI)</b>   |                 |      | <b>127</b> |              |      | <b>129</b> | <b>25.8%</b>  | <b>-1.45 [-2.65, -0.25]</b>           |
| Heterogeneity: Tau <sup>2</sup> = 0.87; Chi <sup>2</sup> = 9.17, df = 2 (p = 0.01); I <sup>2</sup> = 78%     |                 |      |            |              |      |            |               |                                       |
| Test for overall effect: Z = 2.36 (p = 0.02)   |                 |      |            |              |      |            |               |                                       |
| <b>Total (95% CI)</b>  |                 |      | <b>334</b> |              |      | <b>338</b> | <b>100.0%</b> | <b>-0.70 [-1.19, -0.22]</b>           |
| Heterogeneity: Tau <sup>2</sup> = 0.46; Chi <sup>2</sup> = 61.99, df = 9 (p < 0.00001); I <sup>2</sup> = 85% |                 |      |            |              |      |            |               |                                       |
| Test for overall effect: Z = 2.85 (p = 0.004)  |                 |      |            |              |      |            |               |                                       |
| Test for subgroup differences: Chi <sup>2</sup> = 2.52, df = 2 (p = 0.28), I <sup>2</sup> = 20.7%            |                 |      |            |              |      |            |               |                                       |



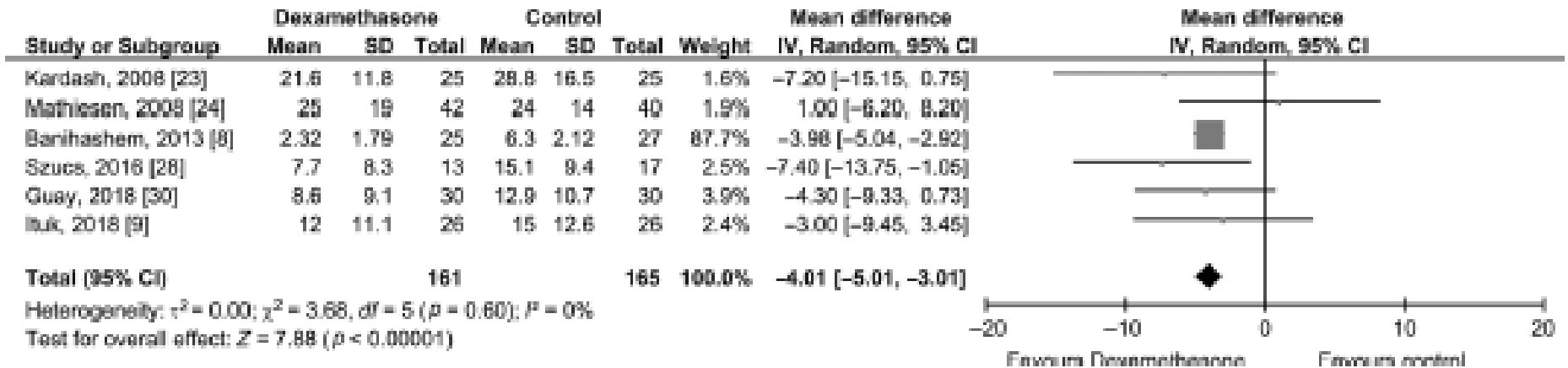
- laparoskopie
- ORL
- ostatní chir.z.

- systematický přehled a meta-analýza, 21 studií, 1309 pacientů
- primární cíl: srovnání bolesti v klidu 2 h po výkonu (3,3 vs. 4)
- síla doporučení: střední

# Effect of intravenous dexamethasone on postoperative pain after spinal anaesthesia – a systematic review with meta-analysis and trial sequential analysis

M. Heesen,<sup>1</sup> K. Rijs,<sup>2</sup> N. Hilber,<sup>3</sup> K. Eid,<sup>4</sup> A. Al-Oweidi,<sup>5</sup> R. Rossaint<sup>6</sup> and M. Klimek<sup>7</sup>

Anaesthesia 2019, 74, 1047-1056



- systematický přehled a meta-analýza, 17 studií, 1133 pacientů
- primární cíl: pooperační spotřeba (24 h) morfinu po podání i.v. dexametazonu
- dexametazon: 8 mg i.v. (0,1 mg/kg, 40 mg)
- síla důkazu: vysoká

# Děkuji za pozornost

