Research protocol: part 1

Project summary

Title	Spinal morphine for postoperative analgesia - safety and effectiveness depending on doses
Methodology	Single-centre interventional single-blind prospective randomised controlled study
Study Duration	Estimated duration for the main protocol (from start of screening to last subject processed and finishing the study) 14 months
Study center	Single centre (Hospital of Traumatology and Orthopaedics, Riga, Latvia)
Objectives	*Primary* To assess and compare pain level among three study groups during 24h after surgery *Secondary* To evaluate the incidence of morphine-related adverse events. To compare the consumption of rescue medication, respiratory rate, capillary oxygen saturation and supplemental oxygen requirements 24 hours after surgery in the treatment and control groups.
Number of subjects	96 randomised patients in the 3 arms
Diagnosis and main inclusion criteria	*Inclusion criteria* • An elective THA scheduled, • The surgical procedure to be performed under spinal anesthesia, • Age from 18 to 80 years, • ASA physical status classification system class I or II. *Exclusion criteria* • Allergies to the medications used in the study, • A severe respiratory disease, • Body Mass Index (BMI) > 38 kg/m^2, • Subject's refusal to participate in the study, • Inability to understand what the study is about, • The subject is currently enrolled in another clinical study.
Study Product, Dose, Route, Regimen	Treatment groups will receive Morphine 0.1 and 0.2 mg intrathecally, control group standard care
Statistical Methodology	*Primary outcome measure* pain at rest 4 h, 7 h, 12 h and 24 h post-op. *Secondary outcome measure* Respiratory rate (RR), peripheral capillary blood oxygen saturation (SpO2), supplemental oxygen, rescue medication, side effects. Data were analysed using R version 4.2.0 (R Core Team, 2022).

General information

Protocol title: Spinal morphine for postoperative analgesia - safety and effectiveness depending on doses.
Protocol identifying number:

- Ethics approval: 24/2020 (22.05.2020)
- Study registration: study ID ISRCTN37212222 (20/04/2022)
- Submission ID 5ca490a5-d260-47f3-8613-c6255ad794c5

No sponsor/funder.

Investigators

Assistant professor at the University of Latvia Iveta Golubovska MD, PhD
Associate professor at the University of Latvia Aleksejs Miscuks, MD, PhD
Associate professor at University of Latvia Renars Erts, Dr.med.phys.
Anaesthesia and intensive care resident MD Eva Vitola
Anaesthesia and intensive care resident MD Natalija Buraka

Research site
Hospital of Traumatology and Orthopaedics, Riga, Latvia.
Duntes Street 22, Riga, Latvia; LV-1005
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University of Latvia, Riga, Latvia
Raiņa bulvāris 19, Rīga, LV-1586
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No other medical and/or technical department(s) and/or institutions involved in the research.

Rationale & background information

Total hip arthroplasty (THA) is the most performed elective orthopaedic surgery in developed countries (1). THA may be associated with significant postoperative pain, up to 5 (3-7) in the pain numeric rating scale (NRS) (2, 3). Such pain may adversely affect patient recovery and early postoperative rehabilitation (4,5). The optimal combination of analgesics is still disputable (6). The intrathecal morphine (ITM) is the most potent alternative. The analgesic benefit of ITM may last up to 24 hours (7). But ITM poses a risk of adverse drug reactions. There is no consensus among anaesthetists as to the optimal dose of ITM (8,9,10). Studies on the possibilities of use of ITM in THA are scarce.
This research is done to compare the effects of ITM doses of 0.1 and 0.2 mg and to find the optimal dose of ITM for patients undergoing THA.

References:

1. Deak N, Varacallo M. Hip Precautions. StatPearls. Treasure Island (FL)2022.
2.Gerbershagen HJ, Aduckathil S, van Wijck AJ, Peelen LM, Kalkman CJ, Meissner W. Pain intensity on the first day after surgery: a prospective cohort study comparing 179 surgical procedures. Anesthesiology. 2013;118(4):934-44.
3.Belbachir A, Fuzier R, Biau D. Unexplained pain after scheduled limb surgery. Orthop Traumatol Surg Res. 2020;106(1S):S13-S8.
4.Awadalla SS, Winslow V, Avidan MS, Haroutounian S, Kannampallil TG. Effect of acute postsurgical pain trajectories on 30-day and 1-year pain. PLoS One. 2022;17(6):e0269455.
5.Wang X, Tay HP, Narayan SW, Penm J, Patanwala AE. Comparison of opioid prescribing upon hospital discharge in patients receiving tapentadol versus oxycodone following orthopaedic surgery. Int J Clin Pharm. 2021;43(6):1602-8.5.
6.Abdallah FW, McCartney CJL. Recommendations for total hip arthroplasty pain management: what's old, what's new and what continues to be missing? Anaesthesia. 2021;76(8):1018-20.
7. Cummings A, Orgill BD, Fitzgerald BM. Intrathecal Morphine. StatPearls. Treasure Island (FL)2022.
8.Koning MV, Reussien E, Vermeulen BAN, Zonneveld S, Westerman EM, de Graaff JC, et al. Serious Adverse Events after a Single Shot of Intrathecal Morphine: A Case Series and Systematic Review. Pain Res Manag. 2022;2022:4567192.
9. Gonvers E, El-Boghdadly K, Grape S, Albrecht E. Efficacy and safety of intrathecal morphine for analgesia after lower joint arthroplasty: a systematic review and meta-analysis with meta-regression and trial sequential analysis. Anaesthesia. 2021;76(12):1648-58.
10.Moraitis A, Hultin M, Walldén J. Risk of postoperative nausea and vomiting in hip and knee arthroplasty: a prospective cohort study after spinal anaesthesia including intrathecal morphine. BMC Anesthesiol. 2020;20(1):242.

Study goals

The goal of the study is find the most efective and safe dose of intrathecal morphine for patients undergoing total hip arthroplasty, comparing 0.1 mg and 0.2 mg doses.

Study objectives

1. To assess and compare pain level among three study groups during 24h post-op.
2. To evaluate the incidence of morphine-related adverse events among three study groups during 24h post-op
3. To count and compare the consumption of rescue medication -subcutaneous morphine - among three study groups during 24h post-op
4. To compare respiratory rate and capillary blood oxygen saturation among three study groups during 24h
5. To compare supplemental oxygen requirement between three study groups during 24h

Study design

Single-centre interventional single-blind prospective randomized controlled study; basic science research.

Before the study started, the sample size was determined: for the study to have an 80% power to show a 20% improvement 12 hours after an operation at a 5% significance level (one-sided), we need to enrol 30 patients in each group.

Subject inclusion criteria:
• An elective THA scheduled,
• The surgical procedure to be performed under spinal anaesthesia,
• Age from 18 to 80 years,
• ASA physical status classification system class I or II.

Subject exclusion criteria:
• Allergies to the medications used in the study,
• A severe respiratory disease,
• Body Mass Index (BMI) > 38 kg/m 2,
• Subject's refusal to participate in the study,
• Inability to understand what the study is about,
• The subject is currently enrolled in another clinical study.

Expected duration of the study: 2020 February – 2021 April.

Methodology

On the day before the elected THA, the subjects read the Patient Information Sheet and sign the Informed Consent Form in two copies (one for the subjects and the other for the researchers). Information acquired: demographic data (age, sex), BMI and co-morbidities. Using the web tool on https://www.randomizer.org, the subjects will be randomised to one of the three study groups. Main investigator enrols participants, second investigator generates the random allocation sequence, and assigns participants to interventions. Participants are blinded after assignment to interventions.
All the study subjects will be premedicated with oral etoricoxib 90 mg prior to the procedure and dexamethasone 8 mg IV at the operating room.
Before THA, all subjects in the operating room will receive spinal anaesthesia with isobaric spinal bupivacaine at 15-18 mg doses (3-3.5 ml of 0.5% Bupivacaine hydrochloride solution (ampule: Bupivacaine-Grindeks Spinal 5 mg/ml - 4 ml solution in glass ampule). Each group will receive different doses of spinal morphine (1% Morphini hydrochloridum, ampule: Morfini hydrohloride-Kalceks 1 ml -1 %):

● Group I or control group receive SA with bupivacaine 15 to 18 mg and 0 mg of morphine,
● Group II (ITM 0.1 mg) receive SA with morphine 0.1 mg mixed with bupivacaine 15 to 18 mg,
● Group III (ITM 0.2 mg) receive SA with morphine 0.2 mg mixed with bupivacaine 15 to18 mg.

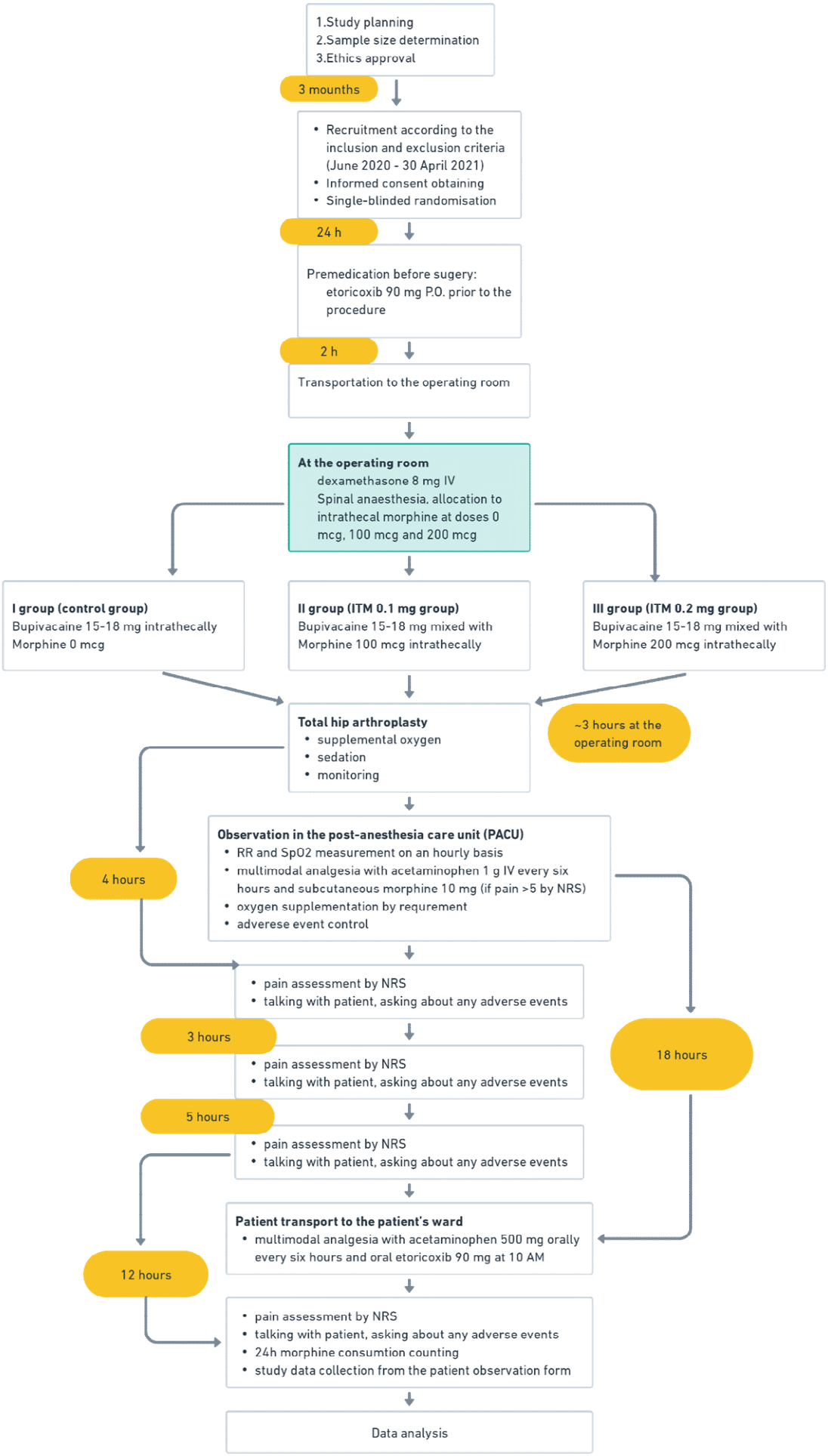
Spinal anesthesia with the patient in the sitting position, at the L3-4 intervertebral space by using a 25-gauge Quincke needle.
Supplemental oxygen via face mask for the duration of the surgery to maintain blood oxygen saturation > 94%. Standard monitoring, including non-invasive blood pressure, electrocardiogram, and oxygen saturations in all patients for the duration of surgery.

All subjects will be observed in the post-anaesthesia care unit (PACU) for 24 h and then transported to the patient's ward for rehabilitation. All subjects will receive the same standardised multimodal analgesia for the hospital stay period: oral etoricoxib 90 mg at 10 AM, acetaminophen 1 g IV every six hours on the day of surgery and continued at 500 mg orally every six hours, morphine 10 mg (1% Morphini hydrochloridum) SC if the pain NRS score was ≥ 5. Also, will be administered ondansetron 8 mg IV in case of vomiting and nausea. At SpO2 fell below 92%, supplemental oxygen will be given using nasal caniles or non-rebreathing masks.

Primary outcome measure
At the postoperative ward, the subjects will be interviewed about pain at rest 4 h, 7 h, 12 h and 24 h post-op. The pain assessment will be performed using the NRS, and the data will be recorded in the study protocol.

Secondary outcome measure
Respiratory rate (RR) and peripheral capillary blood oxygen saturation (SpO2) using a vital sign monitor at the PACU on an hourly basis.
Rescue morphine 10 mg SC upon subject request if the pain score is more than 5 points (by NRS). Every injected dose will be documented in the narcotics inventory form and the consumption over 24 h will be recorded in the study protocol.
Supplemental oxygen: researcher records this in the study protocol.
The subjects will be asked about adverse reactions, such as nausea, vomiting and pruritus during the first 24 hours post-op.

Subject withdrawal conditions:
- subject voluntarily withdraws his or her consent to participate in a study,
- changes in the anaesthesia plan,
- received the medications mismatching the study protocol,
- loss of data.


1.Study planning
2.Sample size determination
3.Ethics approval
3 mounths
• Recruitment according to the inclusion and exclusion criteria (June 2020 - 30 April 2021)
• Informed consent obtaining
• Single-blinded randomisation
24 h
Premedication before sugery: etoricoxib 90 mg P.O. prior to the procedure
2 h
Transportation to the operating room
At the operating room
dexamethasone 8 mg IV
Spinal anaesthesia, allocation to intrathecal morphine at doses 0 mcg, 100 mcg and 200 mcg
I group (control group)
Bupivacaine 15-18 mg intrathecally
Morphine 0 mcg
II group (ITM 0.1 mg group)
Bupivacaine 15-18 mg mixed with Morphine 100 mcg intrathecally
III group (ITM 0.2 mg group)
Bupivacaine 15-18 mg mixed with Morphine 200 mcg intrathecally
Total hip arthroplasty
• supplemental oxygen
• sedation
• monitoring
~3 hours at the operating room
Observation in the post-anesthesia care unit (PACU)
• RR and SpO2 measurement on an hourly basis
• multimodal analgesia with acetaminophen 1 g IV every six hours and subcutaneous morphine 10 mg (if pain >5 by NRS)
• oxygen supplementation by requirement
• adverese event control
4 hours
• pain assessment by NRS
• talking with patient, asking about any adverse events
3 hours
• pain assessment by NRS
• talking with patient, asking about any adverse events
18 hours
5 hours
• pain assessment by NRS
• talking with patient, asking about any adverse events
Patient transport to the patient's ward
• multimodal analgesia with acetaminophen 500 mg orally every six hours and oral etoricoxib 90 mg at 10 AM
12 hours
• pain assessment by NRS
• talking with patient, asking about any adverse events
• 24h morphine consumtion counting
• study data collection from the patient observation form
Data analysis

Safety considerations

All procedures and techniques will be performed by traditional methods according to EU guidelines. All subjects will be clearly informed about all interventions and procedures that should be applied. All patients will be observed and vital functions monitored during procedures and after surgery (24 hours in PACU and following days in the surgical ward). Subjects will be asked about any adverse events every 4 hours and all adverse events will be recorded and reported.
Possible adverse events after intrathecal morphine: nausea and vomiting, pruritus, respiratory depression, shortness of breath, constipations, urine retention.

Follow – up

Each participant is given a phone number and e-mail address of main investigator and asked to contact immediately, if any complaints will be present.

Data management and statistical analysis

The collection of personal patient information will be limited to the amount necessary to achieve the aims of the research, so that no unneeded sensitive information is being collected. Only study personnel will collect data. Data will be collected at the following points: a day prior to THA, 4, 7, 12 and 24 hours after THA. Data will be collected using NRS (numeric rate scale), vital sign monitor, physical examination and communication with subject, Patient Observation Form. The numeric rating scale is a scale designed to help assess the extent of a subject pain and improve communication regarding pain with health care providers. RR, SpO2, heart rate, TA and body temperature will be continuously measured using a vital sign monitor for 24 hours. All data as well as adverse events will be recorded in the Patient Observation Form. Data from the study will be maintained for two (2) years after the date the investigation is completed, terminated or until the records are no longer required to support the protocol, whichever date is later. Custody of the records may be transferred. Patient records and data are eligible for inspection and/or copying by request from evavitola2@gmail.com.

Sample Size

For the study to have an 80% power to show 20% improvement 12 hours after an operation at a 5% significance level (one-sided), we need to enrol 30 patients in each group.

Data statistical analysis

Data will be analysed using R version 4.2.0 (R Core Team, 2022). The quantitative data will be expressed as the mean (M), standard deviation (SD), minimum (min), maximum (max) and 95% confidence interval (CI) and will be analysed using the Mann-Whitney test. The qualitative data reflected as the number (N) and percentage (%) and will analysed using the Pearson's chi-squared test or Fisher's exact test.
The pain levels among the three study groups will be compared using the Friedman test at different timepoints. Pain level dynamics in individual groups was analysed using the Wilcoxon test, comparing the NRS score in each group at the timepoints of 4 h and 7 h, 4 h and 12 h, 4 h and 24 h, 12 h and 24 h after surgery.

If any missing or spurious data will be verified, the subject will be excluded from the study.

Quality assurance

The study is approved by the Medical Ethics Committee of the Hospital of Traumatology and Orthopaedics (Riga, Latvia), protocol/serial number: 24/2020/1.
All study subjects will sign informed consent for all treatments and investigations. All procedures in the study involving human participants will be performed in accordance with the ethics standards of the institutional and national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethics standards.
The study is conducted and reported in accordance with the Consolidating Standards of Reporting Trials (CONSORT) 2010 statement.
This study is registered with the ISRCTN register (https://www.isrctn.com/ISRCTN37212222; registration date: 20/04/2022 (Retrospective registration).
The study complies with high standards of integrity and honesty in all steps of the research process, including proposal submission, data analysis and reporting. The authors have no conflicts of interest to declare.

Expected outcomes of the study

Clearly, this study will provide several benefits:
- This study would show if the intrathecal morphine at the dosage 0.2 mg could provide safe and effective analgesia,
- A lot of THA patients would benefit from this study to have more effective and prolonged analgesia with minimal requirement of additional systemic analgesics after surgery,
- Anaesthesiologists would benefit from this study to be confident of giving ITM at dosage up to 0.2 mg,
- The data of this study could help to improve the multimodal analgesia protocol for orthopaedic patients

Dissemination of results and publication policy

The Principal Investigator (PI) is responsible for validation of results to be disseminated and for determining when and how they will be disseminated.

Duration of the project

February 2020 -February 2021-patient enrolment
February 2021-March 2021-data analysis
March 2021-April 2021 conclusions

Problems anticipated

Covid-19 infection may affect patient enrolment and data collection.

Project management
Eva Vitola and Iveta Golubovska designed and will conduct the study.
Eva Vitola and Renars Erts will collect the data and approve results.
Natalija Buraka and Aleksejs Miscuks help to design and conduct the study.

Ethics

The study is approved by the Medical Ethics Committee of the Hospital of Traumatology and Orthopaedics (Riga, Latvia), protocol/serial number: 24/2020/1.
All study subjects will sign informed consent for all treatments and investigations. All procedures in the study involving human participants will be performed in accordance with the ethics standards of the institutional and national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethics standards.

Consent forms.
Latvian Version.

Pacienta informācijas lapas eksemplārs

Godājamais kungs/ Cienījamā kundze!

Mēs aicinām Jūs piedalīties pētījumā "*Zemas devas spinālā morfīja atsāpināšanas efektivitāte un respiratorie efekti pie gūžas endoprotezēšanas*", ko veic Latvijas Universitātes Medicīnas Fakultātes studente Eva Vītola. Vēlos Jūs iepazīstināt ar pētījuma mērķi, norisi, saturu. Pirms šī dokumenta parakstīšanās rūpīgi izlasiet visu informāciju! Jums ir tiesības uzdot jautājumus par pētījumu un saņemt uz tiem atbildes.

Pētījuma mērķis:

Izvērtēt akūtu pēcoperāciju sāpju ārstēšanas efektivitāti un blakņu risku, izmantojot spinalo morfīju zemās devas.

Pētījuma norise:

Pirms Jums plānotās operācijas tiks veiktas dūriens mugurkaula jostas daļā, kur tiks ievadīts medikaments mugurkaula smadzeņu kanālā, kur anatomiski beidzas muguras smadzenes. Dūrienu veiks atrodoties sēdus pozīcijā, maksimāli izliecot apaļu muguru un piespiežot zodu pie krūtīm. Pirmās 24h pēc operacijas jūsu vitālie rādītāji un sāpju mērījumi tiks fiksēti pētījuma protokolā.

Iespējamie riski:

Pastāv neliels risks uz sliktu dūšu un vemšanu, niezi, elpošanas nomākumu.

Ieguvumi:

Pētījuma dalībniekiem tiks nodrošināta efektīva analgēzija ar mazākām zāļu blaknēm. Notiks rūpīga sāpju līmeņa un vitālo funkciju kontrole. Iespēja piedalīties pētījumā, iegūt vairāk informācijas par sāpēm un anestēzijas veidiem mūsdienu medicīnā.

Konfidencialitāte:

Pacienta sniegtā informācija tiks izmantota pētījuma veidošanai un netiks nekur publicēta vai nodota trešajai personai.

Brīvprātīgā piedalīšanās:

Piedalīšanās šajā pētījumā ir brīvprātīga. Jums ir tiesības atteikties piedalīties pētījumā vai pārtraukt dalību pētījumā jebkurā laikā. Jūsu atteikšanās piedalīties pētījumā vai dalības pārtraukšana neradīs nekādu nevēlamu ietekmi uz Jums sniegtās veselības aprūpes kvalitāti.

Informed Consent (translated)

Dear Sir/ Dear Madam!

We invite you to participate in the study "Effectiveness of analgesia and respiratory effects of low-dose spinal morphine in hip arthroplasty" conducted by Eva Vitola, a student at the Faculty of Medicine of the University of Latvia. We would like to introduce you to the purpose, progress, and content of the research. Please read all information carefully before signing this document! You have the right to ask questions about the study and have them answered.

Objective of the study:
To evaluate the efficacy and risk of side effects in the treatment of acute postoperative pain using low doses of spinal morphine.

Study progress:
Before your planned operation, a puncture will be made in the lumbar spine, where medication will be injected into the canal of the spinal cord, where the spinal cord anatomically ends. The stitch will be performed in a sitting position, with the round back maximally arched and the chin pressed to the chest. For the first 24 hours after surgery, your vital signs and pain measurements will be recorded in the study protocol.

Possible risks:
There is a slight risk of nausea and vomiting, itching, respiratory depression.

Benefits:
Study participants will be provided with effective analgesia with fewer side effects. Pain levels and vital signs will be closely monitored. The opportunity to participate in research, to get more information about pain and types of anesthesia in modern medicine.

Privacy:
The information provided by the patient will be used for research and will not be published anywhere or transferred to a third party.

Voluntary participation:

Participation in this study is voluntary. You have the right to refuse to participate in the study or to stop participating in the study at any time. Your refusal to participate in the study or discontinuing your participation will not have any adverse effect on the quality of health care provided to you.

Research protocol: part 2

No funding will be used in the project.

Curriculum Vitae of investigators

Curriculum vitae (CV) Iveta Golubovska

Personal information	
First name, last name	**Iveta Golubovska**
Birth data	08.07.1965.
Education	
2009-2010 Specialisation in pain therapy, Riga's Stradins University 2005-2008 PhD studies, Riga's Stradins University 01.07.2009. Defended Doctoral thesis **Epidural analgesia after knee replacement surgery: A comparison of efficacy, safety, and stress response modulation at different treatment regimens.** 1988-1989 Internship in anaesthesiology-intensive care 1982-1988 Riga's medical institute, Medical Faculty 1972-1982 42nd secondary school, Vilnius, Lithuania	
Current employment	
2013-2022 Head of Anaesthesiology and Intensive Care Department Hospital of Traumatology and Orthopaedics, Riga, Latvia 2019-2022 Professor's ass., University of Latvia, Faculty of Medicine	
Previous employment	
1992-2002 Anaesthesiologist and Intensive Care specialist Hospital of Traumatology and Orthopaedics, Duntes str 12, Riga, LV 1005, Latvia 2002-2022 Senior consultant anaesthesiologist Hospital of Traumatology and Orthopaedics 2013-2022 Pain specialist "I. Golubovska's private praxis"	
Research experience	

1. D. Mackēvičs, I. Golubovska, M. Radziņš, A. Vugulis, R.Vugulis, R. Leibuss, A. Miščuks. Changes in Cerebral Oximetry in Patients Undergoing Shoulder Replacement Surgery. Proceedings of the Latvian Academy of Sciences. Section B, Natural, Exact, and Applied Sciences Vol. 76, N 3 (2022), p.352-356 https://doi.org/10.2478/prolas-2022-0053.
2. I. Golubovska, A.Miščuks, S. Kazūne, O. Suba ... [et al.] Elective surgery cancellations due to the COVID-19 pandemic: global predictive modelling to inform surgical recovery plans. British Journal of Surgery Vol. 107, N 11 (2020), p. 1440-1449. https://doi.org/10.1002/bjs.11746
3. I. Golubovska, D. Vigante, M. Malzubris, L. Raga, S. Isajevs, A. Miscuks. Severe Clostridium difficile infection with extremely high leucocytosis complicated by a concomitant bloodstream infection caused by Klebsiella pneumoniae after osteomyelitis surgery: A case report. International Journal of Surgery Case Reports Vol. 78 (2021), p.155-158. https://doi.org/10.1016/j.ijscr.2020.12.018
4. T. Jovaiša, I. Norkiene, I. Golubovska, J.Karjagin, L.Gambickas, M. Kalinauskaite, E. Kauzonas, D. Wijatilike. Are we meeting The Current Standarts of Consent for Anaesthesia? An International Survey of Clinical Practice. Medical Science Monitor Vol. 26 (2020) Article Number: e925905, pp1-7.
5. M.Birznieks, I. Golubovska, L Repsa, I. Cernavska, J. Abols, A. Muste, I. Lu, A. Miscuks Fast-track" surgery and early rehabilitation for total hip replacement in hospital of traumatology and orthopaedics. Proceedings of the Latvian Academy of Sciences. Section B, Vol. 73 (2019), No. 5 (722), pp. 20–30. DOI: 10.2478/prolas-2019-00XX2.

Patents:

26.02.2004. "Pharmaceutical compositions of Epidural Analgesia" V. Šidlovska, I. Golubovska, I. Vanags. N 13160

Publications in Latvian editions:

1.Regional Anaesthesia. Chapter in "Anaesthesiology and Intensive care" ed. I. Vanags. Medical publishing house, 2017, pp. 267-313.

2. Neuromodulation. Chapter in "Pain" ed I. Logina, Medical publishing house, 2013, pp 382-390.

Pedagogical work

1.University of Latvia:
Anaesthesiology and Intensive care, lectures and practical classes, part A
Introduction in algology (pain therapy), lectures and practical classes, part B;
First aid, part A
Member of examination comissions
Postgraduate course: Anesthesiology and Intensive care: Anaesthesia in traumatology and orthopaedics, Regional anaesthesia, Acute pain treatment. Member of examination board.

2. Riga`s Stradins University
Postgraduate course Algology (Pain therapy). Acute postoperative pain treatment, neuromodulation. Member of examination board.
Postgraduate course: Anesthesiology and Intensive care: Anaesthesia in traumatology and orthopaedics, Regional anaesthesia, Acute pain treatment. Member of examination board.

3. Part of the curriculum "General ultrasound methods for primary specialization" of the Latvian Medical Society and the practical hours.

4 Part of the curriculum "Evidence-based medications in medical practice. Pain" of the Latvian Medical Society and the practical hours.

Language skills

Latvian-native speaker
Russian –fluent
English-fluent
Lithuanian-good

Institutional positions

President of Latvian Society of Anaesthesiology and Intensive Care since 2018, Board member since 2009
Board member Latvian Pain Research Society from since 2015
Board member Baltic Society of Regional Anaesthesia since 2015
Active ESA member, ESA NASC member
Membership European Society of Regional Anaesthesia since 1998. ESRA speaker 2017

CV Renars Erts

GENERAL INFORMATION

Name: Renārs Erts

EDUCATION

University:

University of Latvia, Dr.med.phys. (from 2007-2010)
University of Latvia, PhD student (from 2003)
University of Latvia, MSc of Physics, (2001 - 2003)
University of Latvia, Bachelor of Physics, (1995 - 2001)

WORK EXPERIENCE

- University of Latvia, Deputy head of the Epidemiology and medical statistics study program (2020 - now)
- University of Latvia (2017 – now), assist.professor
- Riga Stradins university, Physics department (2008 - 2017), assist.professor, Head of the Physics department
- University of Latvia, Institute of Atomic Physics and Spectroscopy (2008 - 2011)

RECENT CONFERENCES

- Data Science Conference Austria 2021, September 27-28 (online)
- 8th Nordic-Baltic Biometrics virtual conference, Helsinki, June 7-10, 2021
- NTTS 2021 Conference (CONFERENCE ON NEW TECHNIQUES AND TECHNOLOGIES FOR STATISTICS) organised by the European Commission on 9-11 March 2021
- Data Science Conference, Austria (https://austria.datasciconference.com/), September 8-9, 2020
- Why R? 2020 Conference. 24-27/09, 2020.

Renars Erts

Curriculum vitae (CV) Natalija Buraka

GENERAL INFORMATION

First name, last name: Natalija Buraka
Adress: Riga, Latvia
Contacts:
natalija.buraka@gmail.com
+371 26219322

EDUCATION

University of Latvia, Faculty of Medicine
Medical Doctor
September 2014 - June 2021

Riga Secondary School No. 60
General education
Riga, Latvia
September 2002 - June 2014

WORK EXPERIENCE

Emergency Physician at the ***Pauls Stradiņš Clinical University Hospital***
Riga, Latvia
August 2021 - Current

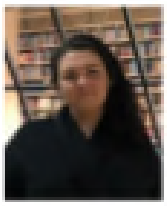
Volunteer *at* the ***Hospital of Traumatology and Orthopaedics***
Riga, Latvia
June 2019 – September 2021

INTERNSHIP

University of Latvia, Faculty of Medicine
Residency in Anesthesiology and Intensive Care
Riga, Latvia
Pauls Stradiņš Clinical University Hospital
October 2021 - current

ACHIEVEMENTS

- Research work «Effect of Dexamethasone on acute pain relief, blood glucose and lactate level after hip arthroplasty» presentation in the final of ESC (Berlin, Germany, 2019),
- The Second Prize at the IMSCB for the paper «Perineural Nerve Stimulation for Acute Pain Management After Shoulder Joint Replacement»,
- Research paper “Breastfeeding problems and infant formula using without medical indications” presentation at the LU ISC 2020.



Eva Vitola

Medical Doctor
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Jelgava, Latvia

Profile

Passionate physician with extensive experience in anestesiology and reanimatology and intensive care. Adept in properly diagnosing and strategizing for the best patient treatment plans. Empathetic and professional attitude, committed to providing patients with the best care possible. A strong leader who works well under pressure and with other medical professionals.

Employment History

Anesthesiologist and Reanimatologist at Riga East Clinical University Hospital, Riga
11/2021–Present

Doctor assistant at Pauls Stradiņš Clinical University Hospital, Riga
02/2021–05/2021

Doctor assistant at Jelgava City Hospital, Jelgava
09/2019–05/2020

In emergency department

Medical doctor at State Emergency Medical Service of Latvia, Riga
03/2015–Present

Education

Doctor of Medicine, University of Latvia, Riga
09/2014–06/2021

Doctor assistant , P. Stradins Medical College of the University of Latvia, Jūrmala
09/2015–06/2020

high school education, Jelgava State Gymnasium, Jelgava

Skills

Leaderships Skills	4/5
Strong Communication Skills	5/5
Best Medicine Practices	5/5
Quality Assurance	4/5
Diagnosis and Treatment	4/5
Catheter manipulation	4/5
Applied Science	4/5

Hobbies

Reading, traveling, shopping, supping and paddle boarding.

Languages

Latvian	Native speaker
English	Highly proficient
Russian	Very good command

Achievements

„Safety and effectiveness of different spinal morphine doses for postoperative analgesia after primary hip replacement" 1st e- BSRA conference of the Baltic society of regional anaesthesia

„Safety and effectiveness of different spinal morphine doses for postoperative analgesia after primary hip replacement" 79th International scientic conference of the University of Latvia

„Factors associated with long-term mortality in children with head injury admitted to the national pediatric intensive care unit in Latvia" MedAll international virtual medical conference

09/2011—06/2014

International exchange programs

Professional exchange program in Mexico, intensive care department

Volunteering, Traumatology and Orthopedic Hospital, Department of surgical operation and Anesthesiology and Intensive care unit

Professional exchange program Tunisia, Intensiev care department

Internships

Resident anesthesiologist and reanimatologist at Pauls Stradiņš Clinical University Hospital, Riga

10/2021—Present

„Perineural nerve stimulation for acute pain management after shoulder joint replacement" 78th International scientic conference of the University of Latvia

„Automated cardiopulmonary resuscitation device for pre- hospital cardiac arrest: a single-centre experience of AutoPulse-CPR" 78th International scientic conference of the University of Latvia

"Drug intoxication case in emergency medicine services" RSU international student conference 2019

"Factors related to good asthma control in Latvian asthma patients in 2015„ European Respiratory Society 2016

Other research activities of the investigators

No other projects at the same time