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Comparative study of three different antibiotic combinations used for the management of acute appendicitis

Submission date 27/10/2020	**Recruitment status** No longer recruiting	[X] Prospectively registered [_] Protocol [_] Statistical analysis plan [_] Results [_] Individual participant data [_] Record updated in last year
Registration date 29/10/2020	**Overall study status** Completed	
Last Edited 01/09/2023	**Condition category** Digestive System	

Plain English summary of protocol

Background and study aims
Appendicitis is inflammation of the appendix (a small pouch connected to the large intestine). It is treated with surgery to remove the appendix. The aims of this study are to identify the microorganisms that cause acute appendicitis, compare the effectiveness and safety of managing acute appendicitis with three different antibiotics that are already used in clinical practice, and study their effect on the microorganisms. The researchers would also like to diagnose acute kidney injury with new biomarkers in urine and blood earlier.

Who can participate?
Participants aged 18 or older with acute appendicitis who are undergoing surgery

What does the study involve?
The study does not change the course of treatment. The researchers will take blood and urine samples and rectal swabs before and after discharge from the hospital.

What are the possible benefits and risks of participating?
During the study patients will not be at a greater health risk. On the contrary, the function of their organs and the level of antibiotics in their blood will be carefully monitored.

Where is the study run from?
University Medical Centre Ljubljana (Slovenia)

When is the study starting and how long is it expected to run for?
August 2020 to April 2024

Who is funding the study?
University Medical Centre Ljubljana (Slovenia)

Who is the main contact?
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Contact information

Type(s)
Scientific

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Additional identifiers

EudraCT/CTIS number
Nil known

IRAS number

ClinicalTrials.gov number
Nil known

Secondary identifying numbers
0120-583/2019/7

Study information

Scientific Title
Prospective randomized comparative study of efficiency and safety of gentamicin with metronidazole, cefuroxime with metronidazole, and ertapenem in the management of community-acquired acute appendicitis in patients who are also treated by surgical management of intra-abdominal infections

Study objectives
There is no difference between the efficacy and safety of usage of gentamicin+metronidazole, cefuroxime+metronidazole or ertapenem. In a group treated with aminoglycosides, the antimicrobial susceptibility of E. coli isolated from rectal swab before and after treatment is the same, which is the same as other antibiotic regimens.

Ethics approval required
Old ethics approval format

Ethics approval(s)

Approved 24/01/2020, National Medical Ethics Committee of Slovenia (Ministry of Health, Štefanova 5, SI-1000 Ljubljana, Slovenia; +386 (0)1 478 60 01, +386 (0)1 478 69 13; kme.mz@gov.si), ref: 0120-583/2019/7

Study design
Prospective randomized comparative study

Primary study design
Interventional

Secondary study design
Randomised controlled trial

Study setting(s)
Hospital

Study type(s)
Treatment

Participant information sheet
Not available in web format, please use the contact details to request a participant information sheet

Health condition(s) or problem(s) studied
Acute appendicitis

Interventions
Patients will be treated with surgery as usual, and one of three (combinations of) antibiotics: gentamicin+metronidazole, cefuroxime+metronidazole and ertapenem.

After signing an agreement to participate in the study, the researchers will take blood and urine samples and also a rectal swab for identifying E. coli spp. in the rectum. Patients will undergo standard procedures, including transfer to the Department for Abdominal Surgery, where they will receive the first dose of one of three already registered and used antibiotics, and then undergo an appendectomy. During the hospital stay the researchers will take another two blood and urine samples, the last one on the day of discharge from the hospital, when another rectal swab will be taken. The duration of antibiotic therapy is predicted to be short, lasting 4 days depending also on clinical grading of appendicitis and guidelines. After 30 days the researchers will check whether the patient has any complications, including a medical or surgical re-intervention.

Urine and blood samples will be examined at the Institute of Clinical Chemistry and Biochemistry. A smaller amount will be stored on ice for further examinations of biomarkers of acute kidney injury.

During an appendectomy according to the protocol a part of an appendix is examined by a pathologist for the exclusion of appendiceal malignancy. In this study the tissue will be held at the Institute of Pathology, where the diagnosis will be done. Then a part of the appendix will be

further examined by a microbiologist at the Institute of Microbiology and Immunology or Comparative laboratory in the EU, based on scientific collaboration to laboratories. They will study the microbiome of the infected appendix, the patients' DNA material will be destroyed.

Intervention Type
Drug

Phase
Not Applicable

Drug/device/biological/vaccine name(s)
Gentamicin + metronidazole, cefuroxime + metronidazole, ertapenem

Primary outcome measure
1. Differential blood count (DBC), C-reactive protein (CRP), albumins and markers of renal function (blood urea, creatinine and glomerular filtration rate (GFR)) measured using blood samples taken at baseline, on the second day after surgery and the day of discharge from the hospital
2. Urine specific gravity, pH, proteins, glucose, bilirubin, urobilinogen, white and red blood cells, methylketones, haemoglobin in urine and sediment in urine (white and red blood cells, bacteria and epithelial cells) measured using urine samples taken at baseline, on the second day after surgery and the day of discharge from the hospital
3. E. coli spp. in the rectum measured using rectal swab at baseline and day of discharge
4. Pathological diagnostics using microscopy and sterile instruments as soon as the appendix is safely removed. If the surgery is going to be in the night, then the material will be transferred in the morning.
5. Microbiome studied using 16S rDNA sequencing after the appendix is safely removed and the pathologist has performed the diagnostics

Secondary outcome measures
Complications of appendectomy measured clinically after 30 days

Overall study start date
01/08/2020

Completion date
30/04/2024

Eligibility

Key inclusion criteria
1. Examined in the ER abdominal surgery department of UCML
2. Adults aged ≥18 years
3. Healthy individuals, no other illnesses
4. Diagnosed with acute appendicitis
5. Indicated for surgery

Participant type(s)
Patient

Age group
Adult

Lower age limit
18 Years

Sex
Both

Target number of participants
225

Key exclusion criteria
1. Minors aged <18 years
2. Polymorbid individual
3. Patient with a serious illness
4. Pregnant or breastfeeding women
5. Known renal impairment

Date of first enrolment
09/11/2020

Date of final enrolment
31/12/2023

Locations

Countries of recruitment
Slovenia

Study participating centre
University Medical Centre Ljubljana
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Sponsor information

Organisation
Ljubljana University Medical Centre

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Sponsor type
Hospital/treatment centre

Website
http://www.kclj.si/

ROR
https://ror.org/01nr6fy72

Funder(s)

Funder type
Hospital/treatment centre

Funder Name
Ljubljana University Medical Centre

Funder Name
Univerza v Ljubljani

Alternative Name(s)
University of Ljubljana, University of Ljubljana Slovenia, University of Ljubljana in Slovenia, Universitas Labacensis, UL

Funding Body Type
Government organisation

Funding Body Subtype
Universities (academic only)

Location
Slovenia

Results and Publications

Publication and dissemination plan
Planned publication in high-impact peer-reviewed journals. The researchers plan to share raw data as required by the WHO and ICMJE.

Intention to publish date
01/10/2026

Individual participant data (IPD) sharing plan
The data will be published in an article and a PhD thesis, otherwise it will not be made public.

IPD sharing plan summary
Other