ISRCTN13659155 https://doi.org/10.1186/ISRCTN13659155

# FLUYT-prevent trial

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|---|---|---|
| **Submission date**<br>04/03/2015 | **Recruitment status**<br>No longer recruiting | [X] Prospectively registered<br>[X] Protocol<br>[_] Statistical analysis plan<br>[X] Results<br>[_] Individual participant data |
| **Registration date**<br>18/05/2015 | **Overall study status**<br>Completed | |
| **Last Edited**<br>22/03/2021 | **Condition category**<br>Digestive System | |

## Plain English summary of protocol

Background and study aims
Every year 17,000 endoscopic retrograde cholangiopancreatographies (ERCP) are performed in the Netherlands. ERCP is a procedure to evaluate and treat conditions concerning the bile duct. The most common complication is post-ERCP pancreatitis (PEP), occurring in 3%-16% of patients undergoing the procedure. PEP leads to prolonged hospitalization with substantial economic impact. Rectal anti-inflammatory drugs carry the most solid evidence in decreasing the PEP rate and this is the current standard of care according to the European Society of Gastrointestinal Endoscopy guideline. A new strategy to prevent PEP was tested in a study which compared standard intravenous (IV) fluid administration with an aggressive rehydration protocol with Ringer's lactate (RL, a type of infusion fluid). However, the limitations of the study were the small number of patients involved and the fact that none of them received anti-inflammatory drugs. The aim of this study is to investigate the value of peri-ERCP hydration with RL on top of standard care, including anti-inflammatory drugs.

Who can participate?
Patients between 18 and 85 years of age undergoing ERCP with a moderate-severe risk for developing PEP

What does the study involve?
Participants are randomly allocated to one of two groups. One group receives intensive RL hydration in addition to rectal anti-inflammatory drugs. The other group receives no or mild hydration with normal saline (salt water) in addition to rectal anti-inflammatory drugs (the standard of care). Participants have the following tests: blood sampling, body measurements and a questionnaire (15-30 min) at 30, 90 and 180 days after the procedure.

What are the possible benefits and risks of participating?
Possible risks are associated with overhydration (i.e. pulmonary edema, ankle edema). However, considering the total volume of fluids used and the exclusion of patients prone to this complication, the risk should be very low. It must be stressed that there is no standard infusion rate, volume and type of fluid, in the peri-ERCP setting. The two regimens proposed in this study are within the range daily common practice use.

Where is the study run from?
A number of hospitals in the Netherlands

When is the study starting and how long is it expected to run for?
April 2015 to November 2016

Who is funding the study?
1. Radboud University Medical Center
2. Netherlands Organisation for Health Research and Development

Who is the main contact?
Dr Erwin van Geenen
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### Study website
https://www.fluyt-trial.nl/

# Contact information

### Type(s)
Scientific

### Contact name
Dr Erwin van Geenen

### Contact details
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# Additional identifiers

### EudraCT/CTIS number
2015-000829-37

### IRAS number

### ClinicalTrials.gov number

### Secondary identifying numbers
Version 2 (dated 09/03/2015)

# Study information

### Scientific Title
Fluid hydration to prevent post-endoscopic retrograde cholangiopancreatography pancreatitis

### Acronym

FLUYT-prevent

## Study objectives
Peri-procedural intensive lactated Ringer's solution hydration on top of rectal non-steroid anti-inflammatory drugs will reduce the incidence of post-ERCP pancreatitis (PEP) in a moderate-to-high risk population, and may even reduce the percentage of severe PEP.

## Ethics approval required
Old ethics approval format

## Ethics approval(s)
On the 14/04/2015, the Medical research Ethics Committees United (MEC-U) gave a positive verdict for the trial. Also, as a Competent Authority for the review of clinical trials in the Netherlands, the CCMO has performed a marginal assessment of the clinical trial. The Competent Authority found no objection against execution of the trial within the Netherlands. This verdict was given on 06/05/2015.

## Study design
Multicenter randomized superiority trial

## Primary study design
Interventional

## Secondary study design
Randomised parallel 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 patient information sheet

## Health condition(s) or problem(s) studied
Choledocholithiasis and other conditions requiring endoscopic retrograde cholangiopancreatography (ERCP)

## Interventions
High volume intravenous hydration with lactated Ringer's solution

Added 17/02/2017:
Partcipants are randomised to one of two treatment arms:
1. Control group: 100mg rectal NSAID + no or mild hydration with normal saline (max 1.5mL/kg /hr, max. 3L/24h)
2. Intervention group: 100mg rectal NSAID + hydration with lactated Ringer’s solution (20mL/kg <60min, starting at the beginning of ERCP (scope-mouth contact), followed by 3mL/kg/hr for 8 hours)

Patients are discharged after ERCP after a minimal clinical stay of 24 hours. It is at the discretion of the treating physician whether an admission or longer monitoring is indicated. All patients are followed up for 180 days after randomization.

### Intervention Type
Mixed

### Primary outcome measure
Post-ERCP pancreatitis, according to Cotton criteria

### Secondary outcome measures
1. Severity of post-ERCP pancreatitis measured at discharge (Cotton criteria)
2. Severe morbidity (Atlanta criteria) or death measured at discharge
3. ERCP related complications within 48 hours after ERCP
4. Fluid hydration related complications within 24 hours after ERCP or at the latest at discharge
5. Length of hospital stay (including stay on the intensive care unit) measured after a follow up period of 6 months (so readmissions can be taken into account)
6. Direct and indirect costs measured after 6 months of follow up
7. Risk factors for developing post-ERCP pancreatitis measured at baseline
8. Generic health-related quality of life measured with EQ5D and SF36
9. Exocrine and endocrine pancreatic insufficiency at 180 days: fecal elastase-1 and HbA1c
10. Incidence of delayed post-ERCP pancreatitis

### Overall study start date
01/04/2015

### Completion date
03/12/2019

## Eligibility

### Key inclusion criteria
1. Requiring ERCP
2. Between 18 and 85 years of age
3. Signed informed consent

### Participant type(s)
Patient

### Age group
Mixed

### Sex
Both

### Target number of participants
826 patients

### Total final enrolment
826

### Key exclusion criteria
1. Allergy to NSAIDs or other contraindications
2. Ongoing acute pancreatitis
3. Ongoing hypotension, including those with sepsis
4. Cardiac insufficiency (CI, >NYHA Class I heart failure)
5. Renal insufficiency (RI, creatinin clearance <40ml/min)
6. Active ulcer disease
7. Severe liver dysfunction: liver cirrhosis and ascites
8. Respiratory insufficiency (pO2<60mmHg or 90% despite FiO2 of 30% or requiring mechanical ventilation)
9. Pregnancy
10. Hyponatremia (Na+ levels < 130mmol/l)
11. Hypernatremia (Na+ levels > 150mmol/l)
12. Oedema
13. Low risk of PEP: chronic calcific pancreatitis (PD intervention is allowed) or pancreatic head mass or routine biliary stent exchange or re-ERCP with a history of endoscopicsphincterotomy with a CBD intervention (PD intervention is allowed)

### Date of first enrolment
05/06/2015

### Date of final enrolment
01/08/2019

## Locations

### Countries of recruitment
Netherlands

### Study participating centre
**Radboud University Medical Center**
Nijmegen
Netherlands
-

### Study participating centre
**St. Antonius Hospital**
Nieuwegein
Netherlands
-

### Study participating centre

**Antoni van Leeuwenhoek Hospital**
Amsterdam
Netherlands
-

**Study participating centre**
**Jeroen Bosch Hospital**
's Hertogenbosch
Netherlands
-

**Study participating centre**
**Onze Lieve Vrouwe Gasthuis**
Amsterdam
Netherlands
-

**Study participating centre**
**Erasmus Medical Center**
Rotterdam
Netherlands
-

**Study participating centre**
**Isala Clinics**
Zwolle
Netherlands
-

**Study participating centre**
**Spaarne Hospital**
Haarlem
Netherlands
-

**Study participating centre**

**Medisch Spectrum Twente Hospital**
Enschede
Netherlands
-

**Study participating centre**
**Univeristy Medical Center Utrecht**
Utrecht
Netherlands
-

**Study participating centre**
**VU University Medical Center**
Amsterdam
Netherlands
-

**Study participating centre**
**Albert Schweitzer Hospital**
Dordrecht
Netherlands
-

**Study participating centre**
**Amphia Hospital**
Breda
Netherlands
-

**Study participating centre**
**Canisius Wilhelmina Hospital**
Nijmegen
Netherlands
-

**Study participating centre**

**Diakonessenhuis**
Utrecht
Netherlands
-

**Study participating centre**
**Gelderse Vallei Hospital**
Ede
Netherlands
-

**Study participating centre**
**HAGA hospital**
Den Haag
Netherlands
-

**Study participating centre**
**Maasstad hospital**
Rotterdam
Netherlands
-

**Study participating centre**
**Martini hospital**
Groningen
Netherlands
-

**Study participating centre**
**Meander Medical Centre**
Amersfoort
Netherlands
-

**Study participating centre**

**Rijnstate Hospital**
Arnhem
Netherlands
-

**Study participating centre**
**Zuyderland Hospital**
Heerlen
Netherlands
-

# Sponsor information

**Organisation**
Radboud University Medical Center

**Sponsor details**
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**Sponsor type**
Hospital/treatment centre

**Website**
www.radboudumc.nl

**ROR**
https://ror.org/05wg1m734

# Funder(s)

**Funder type**
Hospital/treatment centre

**Funder Name**
Radboud University Medical Center, Department of Gastroenterology and Hepatology

### Funder Name
Netherlands Organisation for Health Research and Development

### Alternative Name(s)
Netherlands Organisation for Health Research and Development

### Funding Body Type
Private sector organisation

### Funding Body Subtype
Other non-profit organizations

### Location
Netherlands

## Results and Publications

### Publication and dissemination plan
A manuscript with the study results will be sent to a peer-reviewed journal for publication in Q4 /2019-Q1/2020, regardless of the outcome. Around the same date, an abstract will be sent to international congresses such as the DDW and UEGW.

### Intention to publish date
01/06/2021

### Individual participant data (IPD) sharing plan
The datasets generated during and/or analysed during the current study are/will be available upon request from Dr Erwin van Geenen (Erwin.vangeenen@radboudumc.nl).

### IPD sharing plan summary
Available on request

### Study outputs

| Output type | Details | Date created | Date added | Peer reviewed? | Patient-facing? |
|---|---|---|---|---|---|
| Protocol article | protocol | 02/04/2018 | | Yes | No |
| Results article | | 01/05/2021 | 22/03/2021 | Yes | No |