**GODIF trial synopsis**

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| **Title** | Goal directed fluid removal with furosemide in intensive care patients with fluid overload – A randomised, blinded, placebo-controlled trial (GODIF) |
| **Short title** | GODIF |
| **Objectives** | To assess the benefits and harms of fluid removal with furosemide vs placebo on patient-important outcome measures in adult ICU patients with fluid overload. |
| **Population** | Adult ICU patients with fluid overload of 5 % or more according to ideal body weight |
| **Interventions** | Furosemide infusion to achieve and maintain a neutral cumulative fluid balance. |
| **Comparator** | Placebo (saline 0.9%) |
| **Outcomes** | **Primary**:Days alive and out of hospital at day 90 after randomisation.**Secondary**:1. All-cause mortality at day 90 after randomisation
2. Days alive at day 90 without life support (vasopressor/inotropic support, invasive mechanical ventilation or renal replacement therapy).
3. All-cause mortality at 1-year after randomisation
4. Number of participants with one or more serious adverse events (SAEs) and serious adverse reactions (SARs) to furosemide

**Exploratory**: 1. HRQoL 1-year after randomisation measured using the EuroQoL (EQ)-5D-5L and EQ-VAS scores.
2. Participants subjective assessment of their quality of life since the treatment in the ICU (unacceptable/neutral/acceptable) compared to (EQ)-5D-5L and EQ-VAS scores.
3. Cognitive function 1-year after randomisation as assessed by the Montreal Cognitive Assessment (MoCA mini) score.
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| **Eligibility** | **Inclusion criteria:**1. Acute admission to the ICU **AND**
2. Age ≥ 18 years of age **AND**
3. Fluid overload defined as a positive cumulative fluid balance (according to the daily fluid charts) corresponding ≥ 5 % of ideal body weight (calculated as: 22 x (height in meters)2) **AND**
4. Clinical stable defined as MAP > 50 mmHg and maximum infusion of 0.20. microgram/kg/minute of noradrenaline and lactate < 4,0 mmol/L.

**Exclusion criteria:**1. Known allergy to furosemide or sulphonamides
2. Known pre-hospitalization advanced chronic kidney disease (eGFR < 30 mL/minute/1.73 m2 or chronic RRT)
3. Ongoing RRT
4. Anuria for ≥ 6 hours
5. Ongoing life-threatening bleeding
6. Acute burn injury of more than 10% of the body surface
7. Severe dysnatremia (p-Na < 120 or > 155 mmol/l)
8. Severe hepatic failure as per the clinical team
9. Patients undergoing forced treatment
10. Pregnant women
11. Informed consent not obtainable
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| **Sample size** | 2 x 500 (15% relative risk reduction (8% absolute) in furosemide vs. placebo group in the primary outcome, assuming a baseline 90-day mortality of 27% (two sided α=0.05 and β=0.2) |
| **Trial duration** | The trial intervention will continue for a maximum of 90 days post-randomisation. 90 days and 1-year follow-up post randomisation. Estimated recruitment period is 2 years from August 2020. |