• Early goal-directed therapy reduces intensive care stay after cardiac surgery
• Extravascular Lung Water Index (ELWI) can serve as a warning parameter for volume overload
• Fluid Management: timing is everything!
• Individualise your treatment

Study on Goal directed haemodynamic therapy by Goepfert et al. (1)
Goepfert Algorithm for Cardiac Surgery

PICCO Group

Algorithm 1: SVV was used to optimise preload. After volume optimisation, GEDI was measured and noted as optGEDI.

- If SVV ≤ 10%
  - Define optimal GEDI
  - Go to Algorithm 2
- If SVV > 10%
  - Give volume until SVV ≤ 10% (observe CI and ELWI)
  - ELWI > 12 ml/kg or CI decreasing
  - Consider diuretics
  - Go to Algorithm 3

Algorithm 2: The individually titrated optGEDI served as the goal for preload optimisation in clinical situations where SVV was not feasible.

- If optGEDI reached or SVV ≤ 10%
  - Give volume until opt GEDI is reached or SVV ≤ 10% (observe CI and ELWI)
  - ELWI > 12 ml/kg or CI decreasing
  - Consider diuretics
  - Go to Algorithm 4
- If CI > 2.0 [l/min/m²]
  - MAP > 65 [mmHg]
  - HR > 50 [bpm]
  - Vasopressor
  - Pacing
  - Atropine
  - Orciprenaline
  - Catecholamines

Algorithm 3: Haemodynamic algorithm for patients in the control group.

- If MAP > 65 [mmHg]
  - HR > 50 [bpm]
  - Vasopressors
  - Catecholamines
- If CVP > 8 [mmHg]
  - MAP > 65 [mmHg]
  - CVP > 8 [mmHg]
  - Vasopressors
  - Catecholamines

Control Group

- If MAP > 65 [mmHg]
  - HR > 50 [bpm]
  - Vasopressors
  - Catecholamines
- If CVP > 8 [mmHg]
  - MAP > 65 [mmHg]
  - CVP > 8 [mmHg]
  - Vasopressors
  - Catecholamines

Title: Individually optimized hemodynamic therapy reduces complications and length of stay in the intensive care unit: a prospective, randomized controlled trial

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Journal: Anesthesiology 2013; epub

Study Type: Prospective Randomised Controlled Trial

Hypothesis: Goal-directed haemodynamic therapy, based on the combination of functional and volumetric haemodynamic parameters, improves outcome in patients with cardiac surgery.

Surgeries: Coronary Artery Bypass Grafting (CABG), Aortic Valve Replacement (AVR), CABG + AVR

Technology: PiCCO Monitor with PiCCO femoral artery catheter

No of patients:
- Study Group (SG): 50
  - SVV, GEDI, ELWI, CI, MAP
- Control Group (CG): 50
  - MAP, CVP, HR

GDT: Goal Directed Therapy

SVV: Stroke Volume Variation

GEDI: Global End-Diastolic Volume Index

ELWI: Extravascular Lung Water Index

CI: Cardiac Index

MAP: Mean Arterial Pressure

CVP: Central Venous Pressure

HR: Heart Rate

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