# Inhalational sedation during transport to ICU

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## Introduction

- Inhalational ICU sedation is increasingly used since the introduction of AnaConDa® (Sedana Medical, Sweden). This anesthetic conserving device (ACD) retains exhaled sevoflurane (SEV, Abbott, Wiesbaden, Germany) and resupplies it during inspiration[1]. A syringe pump delivers liquid SEV into the device.
- Since January 2004 we use the ACD as a standard practice (Figure 2). Our patients anesthetised with SEV in the OR and scheduled for ICU sedation with SEV only need propofol during transport.
- Could this be avoided when using the ACD during transport?

## Methods

- Quality improvement study including 41 pats after major abdominal surgery
- ACD group: 20 patients scheduled for inhalational ICU sedation
  - ACD inserted into the anaesthesia circuit for 15 min to take up SEV
  - for transport the ACD was put between tube and Y-piece
  - SEV infusion was started in the ICU after gas monitoring
- control group: 21 patients scheduled for propofol sedation
- volume controlled ventilation with Oxylog 2000 (Dräger, Lübeck, Germany)
- vital parameters and Ramsay Score (RS) assessed at 5 time points
- propofol injections of 0.5 mg/kg were given in both groups if necessary
- t-Test (mean±standard deviation), U-test (median [Interquartile range])

## Results

- Biometric data, total sufentanil, anesthesia, operation and transport times were not different between groups, neither were heart rates, mean arterial pressures and RS at 5 time points during transport.
- ACD patients needed less propofol injections (0[0-1]/3[2-4], p<0,001) and reached the ICU with a similar RS (5[4.5-5]/5[4.75-5]).
- Endtidal SEV concentrations were similar in the OR (1.3±0.2/1.2±0.2 Vol%), but different when arriving in the ICU (0.6±0.2/0.2±0.1 Vol%, p<0.001, figure 1).

| | AnaConDa | controls | |
|---|---|---|---|
| patients (n) | 20 | 21 | |
| age (years) | 63.7±9.3 | 66.7±11.9 | n.s. |
| height (m) | 1.72±0.1 | 1.74±0.1 | n.s. |
| weight (kg) | 77±13 | 78±16 | n.s. |
| blood loss (ml) | 1115±703 | 1273±1262 | n.s. |
| IV fluids (ml) | 5820±1568 | 5527±1813 | n.s. |
| total sufentanil (µg) | 124±75 | 118±57 | n.s. |
| anesthesia (h) | 7.3±2.0 | 6.3±2.2 | n.s. |
| operation (h) | 6.1±2.0 | 5.3±2.2 | n.s. |
| transport time OR to ICU (min) | 16.2±2.3 | 16.9±2.7 | n.s. |
| sevoflurane OR (et Vol%) | 1.3±0.2 | 1.2±0.2 | n.s. |
| sevoflurane ICU (et Vol%) | 0.6±0.2 | 0.2±0.1 | sign. |

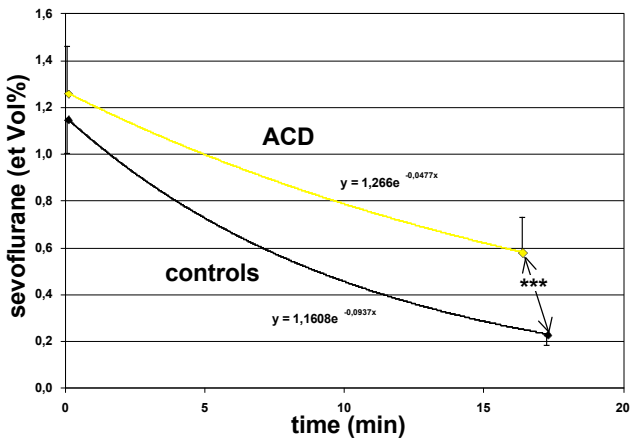


Figure 1 shows the last endtidal concentrations of sevoflurane in the OR and the first ones on arrival in the ICU.
Data are mean values and standard deviations (antennae).
Equations of the exponential interpolation are shown in the diagram.
*** P<0.001, t-Test

Figure 2 shows the ACD (arrow) in routine use in our ICU

## Conclusions

- For the first time inhalational transport sedation can be performed safely and with minimal effort (no vaporizer, no syringe pump, no gas monitor).
- AnaConDa® effectively retains sevoflurane in patients during >15 min.
- Hemodynamic stability and depth of sedation are as good as with the standard propofol.
- Less sevoflurane exhaled during transport also means less contamination of the workplace.

Reference:
1. A. Meiser, H. Laubenthal
Best.Pract.Res.Clin. Anaesthesiol. 19:523-38 (2005)