PLEASE NOTE: *This trial has been registered retrospectively.*

Trial Description

Title

Incidence of delirium dependent on the type of sedation in ventilated ICU-patients - a prospective observationstudy with two patient cohhorts: midazolam/fentanyl vs. methohexital/fentanyl and propofol/remifentanil vs. methohexital/remifentanil

Trial Acronym

[---]*

URL of the trial

http://keine

Brief Summary in Lay Language

The aim of the study is to show that with respect to the developpment of a ICU delir there should be considerable differences between the various sedation regimes used. While sedation with with midazolam has a high incidence of delirium, the incidence with propofol and methohexital is largely unknown. Accordingly we evaluated in a prospective cohort study the incidence of delir in sedated and ventilated ICU patients comparing the following regimes: midazolam/fentanyl vs. methohexital/fentanyl and propofol/remifentanil vs. methohexital/remifentanil.

Brief Summary in Scientific Language

The incidence of delirium in ventilated and sedated ICU patients is belived to be up to 80%. Delirium is defined (DSM IV) as a disturbance of consciousness and cognition caused by a medical condition, substance intoxication, or medication side effect. One main risk factor to develop delirium is sedation for artificial ventilation in an ICU.
Especially benzodiazepines like midazolam carry a high (up to 80%) risk for inducing a delirium during weaning from artificial ventilation. Reasons for developping a delirium seemed to be suspension of day-night rhythm and deep sedation. As a consequence duration of artificial ventilation, stay in ICU, stay in hospital as well as mortality all are incfeased in patients with delirium.
Despite recommendation in the german S3 guidelines for sedation in artificial ventilation there are no data concerning the incidence of delirium with propofol. Advantages of using a barbituric acid analogon like methohexital might be: no disturbance of the day-night rhythm and lower potential of inducing delirium. However with respect to delirium no comparison to benzodiazepines or propofol has been made until today.
Accordingly, the present study compares in a prospective two cohort design two sedation regimes in patients undergoing artificial ventilation:
•midazolam/fentanyl vs. methohexital/fentanyl

**methohexital/remifentanil will be used, in patients expected to be ventilated > 7 days midazolam/fentanyl or methohexital/fentanyl will be used. All substances will be managed according to the german S 3 guideline „Analgesie, Sedierung und Delirmanagement in der Intensivmedizin“ of the DGAI and the DIVI.
Measurements: delirium every 8 h by the „Intensive Care Delirium Screening Checklist“ (ICDSC) which contains 8 items. These items have to be answered with yes (1 point) or no (0 point). Delirium is diagnosed with 4 points or more.
Additional measurements: visual analgue scale for pain (VAS, 0 to 10), Richmond-Agitation-Sedation-scale-score (RASS, range -5=unarousable to +4=combative). A RASS of ≤ -3 excludes an evaluation of the ICDSC. Duration of artificial ventilation, length of ICU and hospital stay, ASA physical status, age, weigth, height, sex, smoking status, SOFA and SAPS II scores, TISS 28, incidence of acute renal failure (RIFLE criteria), number of interventions inside or outside the ICU.
Primary end point: ICDSC-score during the ICU stay. Inclusion criteria: all sedated patients with artificial ventilation aged < 18 years. Exclusion criteria:
Age < 18 Jahre, preexisting neurological or psychiatric disease, any disease rendering communication unpossible. Null hypothesis: no significant difference between the ICDSC score in the midazolam/fentanyl vs. methohexital/fentanyl and propofol/remifentanil vs. methohexital/remifentanil groups.
Statistics: Assuming an incedence of delirium in the midazolam group of 70% and in the methohexital group of 35% 16 patients were needed each in the midazolam/fentanyl and the methohexital/fentanyl cohort (p=0.05, beta:0.1). Assuming an incidence of delirium in the propofol group of 50 % and in the methohexital group of 35% 92 patients were needed in the propofol/remifentanil and methohexital/remifentanil group respectively (p=0.05, beta:0.1). All data will stored in Excel spread sheets. Statiistical evaluation will be performed by the Institut of Biomathematics of the Goethe-University Frankfurt. No additional measurements exceeding routine ICU care will be made. Duration of study: 2 years. Study will be terminated when the prespecified numbers of patients in the two cohorts have been reached.**

Organizational Data

- DRKS-ID: **DRKS00004601**
- Date of Registration in DRKS: **2013/01/03**
- Date of Registration in Partner Registry or other Primary Registry: **[---]***
- Investigator Sponsored/Initiated Trial (IST/IIT): **yes**
- Ethics Approval/Approval of the Ethics Committee: **Approved**
- (leading) Ethics Committee Nr.: **FF 56/2010 , Ethikkommission der Landesärztekammer Hessen**

Secondary IDs

Health condition or Problem studied

- ICD10: **F05.8 - Other delirium**
- ICD10: **F05.9 - Delirium, unspecified**

Interventions/Observational Groups

- Arm 1: **Midazolam/Fentanyl vesus Methohexital/Fentanyl**
- Arm 2: **Propofol/Remifentanil versus Methohexital/Remifentanil**

Characteristics

- Study Type: **Non-interventional**
- Study Type Non-Interventional: **Observational study**
- Allocation: **Other**
- Blinding: **Open (masking not used)**
- Who is blinded: **[---]***
- Control: **Active control**
- Purpose: **Treatment**
- Assignment: **Other**
- Phase: **N/A**
- Off-label use (Zulassungsüberschreitende Anwendung eines Arzneimittels): **N/A**

Primary Outcome

VAS, RASS und ICDSC every 8 h during the stay on the ICU. Primary end point: ICDSC-points during ICU stay. Nullhypothesis: there is no significant difference in the incidence of delirium measured with the ICDSC between Midazolam/Fentanyl vs. Methohexital/Fentanyl and Propofol/Remifentanil vs. Methohexital/Remifentanil.

Secondary Outcome

**Duration of mechanical ventilation, length of stay in ICU and hospital, mortality.
Other variables:
American Society of Anesthesiologists Classification (ASA), age, heigth, weight, sex, smoking status; SOFA, SAPS II, TISS 28 score; incidence of acute renal failure (RIFLE-criteria), numbers of interventions.**

Countries of recruitment

- DE **Germany**

Locations of Recruitment

- Medical Center **Asklepios Klinik Langen, Langen**

Recruitment

- Planned/Actual: **Actual**
- (Anticipated or Actual) Date of First Enrollment: **2011/11/09**
- Target Sample Size: **216**
- Monocenter/Multicenter trial: **Monocenter trial**
- National/International: **National**

Inclusion Criteria

- Gender: **Both, male and female**
- Minimum Age: **18 Years**
- Maximum Age: **no maximum age**

Additional Inclusion Criteria

All ventilated and sedated patients aged > 18 years

Exclusion criteria

Aged < 18 years, known neurological or psychiatrical diseases, any diseases making communication impossible

Addresses

- **Primary Sponsor**

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Sources of Monetary or Material Support

- **Institutional budget, no external funding (budget of sponsor/PI)**

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Status

- Recruitment Status: **Recruiting complete, follow-up continuing**
- Study Closing (LPLV): **2013/01/14**

Trial Publications, Results and other documents

- Abstract **Abstrakt_DAC_2013**

** This entry means the parameter is not applicable or has not been set.*

**** This entry means that data is not displayed due to insufficient data privacy clearing.*