AIC14

TEACHING NEUROAXIAL BLOCKADE: DATA FROM THE INNSBRUCK CADAVER WORKSHOPS

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Introduction. Although the use of regional anaesthesia in residency training programs has increased, a wide variability between residency programs remains. Aim of the study was to determine the usefulness combination of a hands-on cadaver model with subsequent CT Scan analysis to teach the principles of epidural anaesthesia.

Material and Methods. A highly experienced tutor demonstrated the landmarks for epidural puncture on a skeleton and on the cadaver and performed epidural puncture. The participants followed this concept. Control of puncture was done by a CT Scan, than after the first puncture they trained again on cadavers but without control of a tutor or CT. The final puncture was again performed under CT Scan.

Results. In this study, 112 anaesthetists (59% residents versus 41% specialists) were evaluated, most of the residents were nearly untrained and performed a medium of 0.9 PDA per week. 86% felt the loss of resistance (LOR), as opposed to 12% who were unable to attain LOR (2% no responders) At their first puncture 53% were successful (needle in epidural space) 47% were unsuccessful. After the training 88% were successful. The participants classified their acquaintance of the three dimensional epidural space significantly improved.

Conclusion. The likelihood of complications of PDA in inexperienced colleagues may be high. Therefore practice on models is recommended, however, we believe cadavers are better and more realistic models for EDA training. Because of the special cadaver preparation the disadvantage of stiffness constituted no problem.

AIC15

ANAESTHESIA WITH REMIFENTANIL FOR ENDOVASCULAR AORTIC STENT PLACEMENT

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Background. Endovascular stent graft placement has gained increasing importance since the pioneer treatment by Parodi (1) and requires specific anesthesiologic management. The aim of this study was to evaluate feasibility of remifentanil anesthesia for stent placement.

Materials and Methods. After approval by the ethics committee and informed consent, 15 male patients scheduled for stent graft placement were included. Premedication: midazolam 3.75mg orally, 8mg ondansetron i.v. Induction of anesthesia: 2mg midazolam, remifentanil 0.3µg/kg/min, etomidate 0.3mg/kg and cisatracurium 0.15-0.20mg/kg. Maintenance of anesthesia: remifentanil 0.2µg/kg/min and sevoflurane 0.5 MAC (endtidal). Required hypotension for stent positioning was provided according to the attending anaesthesiologist’s decision. Monitoring: ECG, radial arterial and central venous pressure, peripheral oxygen saturation, urine output. Postoperative analgesia: piritramid (patient controlled analgesia) and diclofenac. Data are presented as mean±SD. Pearson correlation coefficients were calculated for time span (end of surgery, cessation of remifentanil - awakening) and age, body mass index (BMI), duration of anesthesia, cumulative remifentanil dose. Immediately after extubation, 12 patients had a visual analog scale score (VAS 0-10) of 0; 2 patients had 1 and one patient scored 2.

Remifentanil is suitable for the specific anesthesiologic requirements of stent graft placement. We observed no prolongation or aggravation of deliberately induced periods of hypotension. Remifentanil also provides short time intervals to extubation and awakening.

Reference

AIC16

THE PRESYNAPTIC SNARE COMPLEX IS A MOLECULAR TARGET FOR VOLATILE ANESTHETICS

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Background. Despite considerable efforts, the molecular mechanism of anesthesia remains unknown. Based on our previous genetic results in C. elegans, we hypothesized that a presynaptic SNARE protein or the ternary SNARE complex are molecular targets for volatile anesthetics. Neuronal SNARE proteins (SNAP-25, syntaxin, and VAMP) interact with each other and are essential for synaptic vesicle exocytosis.

Materials and Methods. His6- tagged recombinant rat SNARE proteins were expressed in BL21(DE3) bacteria and purified by Ni-NTA-agarose chromatography and FPLC. Binding of iso-urane and halothane to SNARE proteins and complex was measured at different concentrations by 2H-F-NMR. Protein bound anesthetics have a significantly lower T2 time compared to buffer.

Results. Binding characteristics of volatile anesthetics to the tested SNARE proteins and the complex were markedly different. The ternary SNARE complex and syntaxin bound isoflurane and halothane in a saturable, dose-dependent manner at clinical concentrations, as did SNAP-25 multimers. Monomeric SNAP-25 and VAMP do not bind volatile anesthetics. Addition of isoflurane markedly increased the T2 time of halothane and vice versa (+40%), indicating competition between the two anesthetics.

Conclusion. In this study, we were able to show that the physiologically important ternary SNARE complex is a molecular target for volatile anesthetics. The structure of the SNARE complex and syntaxin – both are 4-helix bundles - suggest that there might be a common binding characteristic.

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AIC17

EFFECTS OF HIGH-FREQUENCY JET-VENTILATION IN EXPERIMENTAL LUNG INJURY

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Background and Goal of Study. High-frequency jet-ventilation (HFJV) techniques have been reported for successful bridging of acute lung injury (ALI)1. We evaluated the the effect of HFJV with two jet streams2 in a porcine ALI model.

Materials and Methods. After approval by the local animal care committee, 18 pigs (28-32 kg) were randomly assigned to 3 groups. After induction of ALI with oleic acid (0.08 mg/kg) tracheotoitized animals received either HFJV applying a high-frequency (HF=500/min)