POSTER SESSION XVII

A488

TITLE: THE EFFECT OF ALCOHOLS AND ACETONE ON 3.3NM INFRARED ANESTHETIC AGENT MONITORS

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Introduction: Interference of alcohols with infrared monitors operating at the 3.3 nm wavelength is well known.[1] Nafion drying tubes, incorporated in most modern monitors to reduce the humidity of the gas sample also allow some of the alcohol to escape along with the water vapour, and therefore modify the alcohol interference.[2] During prolonged usage, Nafion tubes tend to become gradually less permeable to water and to alcohols and therefore may change the magnitude of interference. Maximum alcohol nterference should occur when the Nafion tubing is completely impermeable or exhausted. We have investigated the relative magnitude of maximum interference caused by ethyl, methyl and isopropyl alcohol and acetone on a commonly used 3.3nm infrared monitor (Datex, CapnomacII), which was modified for the study.

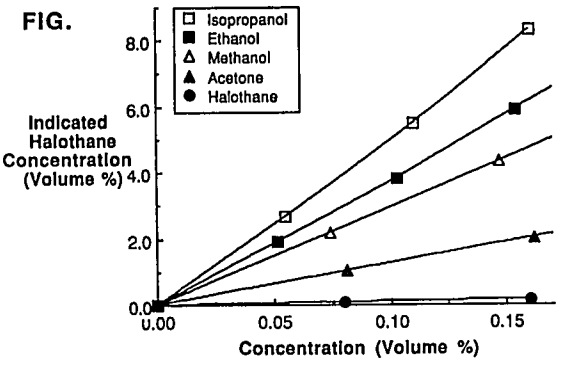
Methods: Changing the Datex Monitor (DM) to the modified Datex Monitor (MDM) consisted of replacing all the internal Nafion tubing with teflon tubing of similar dimensions. This modification enabled us to observe the unattenuated effect of alcohols on the monitor.

Alcohol vapour samples were prepared by a injecting a known volume of liquid alcohol into a stoppered 4L rigid glass bottle to which a 100mL glass syringe was attached for facilitating mixing and volume expansion. The exact alcohol concentration in the bottle was calculated from a formula derived from basic principles. For ease of comparison of the sensitivity of the monitor to halothane, alcohols and acetone, the same concentration units (volume %) were used. After the gas was adequately mixed in the bottle, it was sampled by the monitor via a standard 10 Ft sampling line, until a stable reading was obtained. The response to alcohol in each case was recorded with the monitor set to Halothane. Each of four different concentrations were prepared and measured three times and the mean of the three values plotted. The measurements were repeated for acetone and halothane using the same method. Linear correlation analysis was performed on the values thus obtained and the lines were plotted on the same diagram for easy visual comparison.

Results and discussion: The response of the MDM to alcohols and acetone was rapid and linear in the investigational range. (Fig). Without the Nafion tubing, the DM is approximately 50 times more sensitive to isopropanol than to halothane. Although we have chosen to study this particular monitor, we do not wish to imply that other monitors using wavelengths in the 3.3 nm range do not share similar problems involving alcohols or acetone.

References:
1.Doyle DJ, Can J Anaes, 35: 667,1988
2. Kertzman J, Perma Pure Products Inc.(personal comm.)

FIG.



A489

TITLE: AN AUTOMATED COMPUTER-ASSISTED ANESTHESIA INTERVIEW FOR OUTPATIENT ANESTHESIA

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Introduction. Outpatient surgery puts logistical demands upon anesthesiologists. Often the preoperative visit is performed by another member of the anesthesia care team and it is important that consistent historical information be available in an accessible, readable summary similar to what each anesthesiologist would elicit. A computer based preanesthetic interview has been designed for rapid, reliable collection and convenient display of preanesthetic patient historical information. This study compared the computer-generated history with the anesthesiologist derived history and determined the quality of information derived from a computer generated preoperative visit.

Methods. This study was done in accordance with institutional procedures regarding use of human subjects. A laptop computer with the computerized interview was given to each subject. A short instructional program was included in the computer interview that allowed the subject to complete the interview without supervision. No verbal instruction was given to the subject, other that to follow the computer's directions. A summary sheet was given to the subject, to check for errors and a corrected copy was used as the computer record(C). Following the computerized interview, an anesthesia resident performed a preanesthetic evaluation(A). The preanesthetic evaluation was timed, and the history was reviewed. A separate interview was held by the investigator with each subject. Responses from evaluation A were compared to evaluation C for correct and incorrect answers, and for positive symptoms elicited by each. In instances where the evaluations agreed; both were assumed to be correct. For most other items, a positive symptom or finding was listed by either the computer summary or the physician was considered correct. Statistical testing included ANOVA for repeated measures, t-test and Pearson Chisquare; $p<0.05$ was considered significant.

Results. Data from 21 patients aged 41-84 was collected and all subjects completed both evaluations. The mean age of the participants was 59±7 years. Evaluation C asked more questions: 71±11 than evaluation A 45±8 (Table). The time to complete an automated evaluation (C) was 5.7±0.7 min versus 14.3±2.1 min for evaluation A. ASA classification of the groups was different, with evaluation C tending to assign a higher ASA class than group A. Evaluation C had more correct responses than the A evaluation in all categories except previous anesthetic history and airway evaluation (Fig).

Discussion. This study demonstrated that computer-assisted preanesthesia interviews were shorter and more consistent than the anesthesiologist's preanesthesia interview in gathering preoperative historical information. The data also indicated that the subject's responses to the computer interview matched the anesthesiologist responses. Interestingly, residents equaled the computerized interview in areas of previous anesthetic history and airway review. The computerized interview offered a rapid, objective historical interview with good agreement with an anesthesia resident's evaluation.

Evaluations	Computer (C)	Anes. Resident (A)
# Questions	71±11	45±8 **
Interview Time (min)	5.7±0.7	14.3±2.1 **
ASA Class: I	1	3 **
II	5	7 **
III	15	11 **

** Difference between groups $p<0.01$