26221 - COMPARISON OF BIS™ MONITOR AND ACTIGRAPH™ DURING GENERAL ANESTHESIA

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INTRODUCTION: The measurement of small wrist movements using an Actigraph motion detector has been used to determine depth of sleep in sleep laboratories 1,2 and in one study of subjects having general or regional anesthesia 3 where it was found to correlate well with clinical observations of depth-of-anesthesia. This open pilot study is the first to compare the Actigraph to the BIS Monitor.

METHODS: Following research ethics Board approval, ten consenting subjects had an Actigraph monitor applied to the left wrist during general anesthesia, and a BIS monitor applied to the forehead in the prescribed fashion. The Actigraph recorded a reading every minute, and the BIS score was recorded: prior to induction; at induction; 1, 5, and 10 minutes later; when the vapour was turned off; and 2 and 4 minutes after that.

RESULTS: Regression of Actigraph on BIS with 76 pairs of data points showed no significant correlation ($P = 0.065$). Bland and Altman 4 agreement was determined after normalizing the Actigraph data to a percent of the maximum Actigraph reading. Then the mean difference of BIS minus Actigraph was 50% with limits of agreement -2 to 101%.

DISCUSSION: Awake patients spend considerable time lying still. The Actigraph is not a useful monitor of anesthetic depth for general anesthesia. A study of ICU sedation is warranted.

REFERENCES: 1. Sleep 1992;15: 461–469. 2. Middlekoop HAM: Actigraphic Assessment of Sleep and Sleep Disorder. Delft, The Netherlands: Eburon Publishers, 1994;1–121. 3. Journal of Clinical Anesthesia 2001; 13(6): 455-460. 4. Lancet 1986;1(8476):307 – 310.