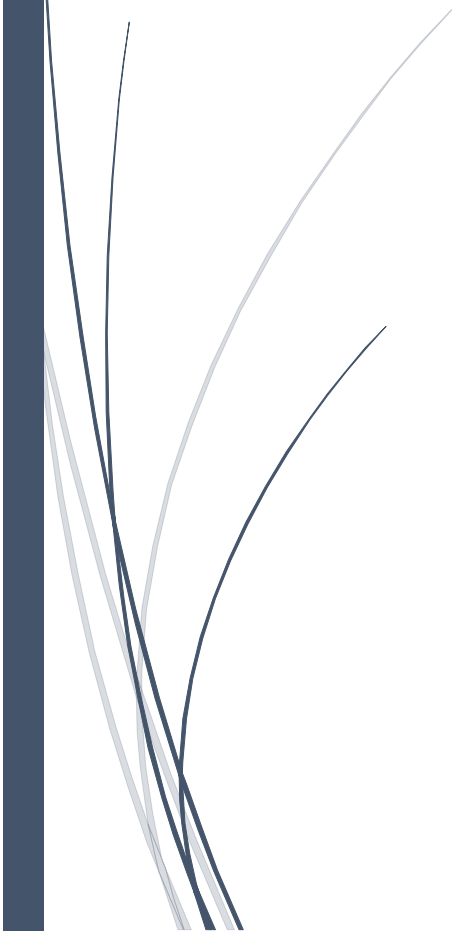
How Are Cognitive Functions Affected by Different Sedation Methods in Geriatric Endoscopic Retrograde Cholangiopancreatography Patients?



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Study Protocol

Our observational prospective study included 184 inpatients aged 65 years and older who received propofol or propofol + dexmedetomidine for sedation during ERCP. To evaluate cognitive function, Mini Mental State Examination (MMSE) was administered 3 times before the procedure and 2 hours and 24 hours after the procedure. Frailty level of the patient was determined using the frail frailty questionnaire. Each patient received 0.5µg/kg fentanyl (iv). In the propofol group, propofol loading dose: 0.2-0.5mg/kg, maintenance infusion dose: 0.5-4mg/kg/h was continued. In the dexmedetomidine group, in addition to propofol infusion at the same doses, dexmedetomidine 0.5 µg/kg-1 loading dose was administered within 10 minutes and then continued as infusion at a dose of 0.2-0.7 µg/kg/h. Ramsey score was kept at 3-4. ERCP procedure time, total amount of propofol and dexmedetomidine used, atropine and ephedrine administered additionally were recorded.

Statical Analysis

The conformity of the continuous variables to normal distribution was evaluated graphically and by Shapiro-Wilks test. Mean±Standard Deviation and Median (Minimum-Maximum) values were used to represent descriptive statistics. In the comparison of MMSE values according to Propofol-Dexmedetomidine grouping, Independent Sample t test was used for the parameters with normal distribution and Mann-Whitney U test was used for the parameters without normal distribution. In order to examine whether the parameters in the study differed at the measurement times (before the procedure, 2 hours after the procedure, 24 hours after the procedure), repeated measures ANOVA was used for the parameters with normal distribution and dependent sample Friedman's test was used for the parameters without normal distribution. Bonferroni correction was made for pairwise comparisons and the results of the analysis were given. In the comparison of categorical variables according to Propofol-Dexmedetomidine grouping, cross tabulations were created, number (n), percentage (%) and chi-square (χ^2) test statistics were given. Spearman non-parametric correlation coefficient was used in the correlation analysis between FRAIL score and MMSE scores. Kruskal Wallis Test was used to compare the parameters according to FRAIL classification. IBM SPSS Statistics 21.0 (IBM Corp. Released 2012. IBM SPSS Statistics for Windows, Version 21.0. Armonk, NY: IBM Corp.) and MS-Excel 2007 programs were used. Statistical significance level was accepted as $p<0.05$.

Results

There was no statistically significant difference between the Propofol and Dexmedetomidine groups in terms of MMSE score before the procedure ($p>0.05$). In the dexmedetomidine group, a significant difference was found in the post-procedure 2nd hour and 24th hour MMSE scores ($z=2.943$, $p=0.003$ and $z=2.816$, $p=0.005$). Individuals in the Dexmedetomidine group had a higher mean MMSE score after the procedure compared to the Propofol group. The increase in MMSE in the dexmedetomidine group was statistically more significant compared to propofol, especially in prefrail patients. In individuals who were pre-frail according to the Frail classification, the increase in MMSE values at the 2nd and 24th hour after the procedure in the Dexmedetomidine group was statistically significant ($z=2.152$, $p=0.031$ and $z=2.196$, $p=0.028$).