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CARBON DIOXIDE INSUFFLATION IN COLONOSCOPY IS SAFE: EXPERIENCE OF 348 PATIENTS

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INTRODUCTION: Recent studies suggest that insufflation of carbon dioxide (CO2) can reduce peri-procedural pain during endoscopic procedures; however, air insufflation has remained the standard procedure in most endoscopy units. Preliminary studies using CO2 insufflation during colonoscopies have limitations as they included only small number of patients, especially if patients were investigated during conscious sedation. Also, the safety data base during CO2 insufflation with continuous CO2 monitoring is small. In an initial randomized double blind study including 219 patients undergoing ambulatory colonoscopy, the advantages (less pain and bloating) and safety of CO2 insufflation could be demonstrated. The aim of the present study is to update our database with respect to safety.

AIMS & METHODS: A total of 348 patients undergoing ambulatory colonoscopy were included in the study. All procedures were done with propofol sedation and CO2 insufflation. Baseline demographics were recorded, propofol dosage was assessed and complications during the procedure were recorded. The focus of the analysis was the safety of the procedure. In particular, we also analyzed a correlation between the amount of CO2 insufflation and the transcutaneous CO2 concentrations. Statistics were done with SPSS Version 11.0.

RESULTS: RESULTS (mean±SD): A total number of 352 patients were included. 4 patients were excluded from the analysis due to problems with the transcutaneous CO2 measurement. 109 patients were from our initial double-blind study and 239 patients from the follow-up open study. The mean age was 61±12 yrs in second group versus 58±13 yrs in patients from the first study (NS). Propofol dosages were 137±68 mg versus 134±56 mg (NS). CO2 baseline values were 35±5 mmHg (second study) versus 33±5 mmHg (first study). The CO2 values at the time when the terminal ileum was reached averaged 40±5 mm Hg versus 37±5 mm Hg and 38±5 mm Hg versus 35±4 mmHg at the end of the examination. Maximal CO2 increases were 4.6±4.0 mmHg versus 4.2±4.0 mmHg, but all CO2 values remained within normal limits. All these parameters were not significantly different between the two groups. No correlation between the inflated liters of CO2 and the increase of CO2 (p-Pearson 0.72, p-Spearson 0.84) was documented. Neither respiratory side effects nor any complication were recorded.

CONCLUSION: The present study confirms and extents previous observations that CO2 insufflation during colonoscopy is extremely safe and easy to use for the endoscopist.
There is no correlation between insufflated CO2 and the increase of CO2. We infer from these data that CO2 insufflation should become the standard for colonoscopy.