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The Use of Automated Carbon Dioxide Insufflation for CT Virtual Colonoscopy Compared with Manual Air Insufflation: A Local Institutional Experience

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Introduction

Automated carbon dioxide insufflation of colon is a known alternative to manual air insufflation for virtual colonoscopy (VC) examination. Literature has shown that use of automated insufflation of carbon dioxide significantly improves colonic distension compared with manual insufflation. The image quality and diagnostic accuracy is thus improved. Before mid-2014, all virtual colonoscopy done in PYNEH was performed with manual insufflation. Automated carbon dioxide insufflation technique was introduced at mid-2014. Patient discomfort is anticipated with increased colonic distension.

Objectives

To compare the effects of automated carbon dioxide insufflation and manual air insufflation on distension and patient acceptance for CT virtual colonoscopy.

Methodology

A total of 50 consecutive patients who underwent CT virtual colonoscopy (VC) examination were recruited. The first 25 patients underwent manual air insufflation. The later 25 consecutive patients underwent automated carbon dioxide insufflation. There are no exclusion criteria. Patient satisfaction surveys containing five questions each with a 5-point scale were distributed upon completion of the examination. CT data sets were assessed retrospectively in consensus by two blinded observers who graded distension for five colonic segments using a 4-point scale.

Result

The mean score of overall patient satisfaction for patients undergoing automated carbon dioxide insufflation is 4.60. The mean score for the group undergoing manual insufflation is 4.52. There is no statistically significant difference between the two groups ($p>0.05$). In the subgroup analysis of overall patient satisfaction in patients under 65 years of age using Mann-Whitney test, there is statistically significant

difference between the automated carbon dioxide insufflation group versus manual insufflation group ($p<0.05$). The mean grade of distension for patients undergoing automated carbon dioxide insufflation is 2.95, whereas the mean grade for the group undergoing manual insufflation is 3.00. There is no statistically significant difference between the two groups ($p>0.05$). CONCLUSION: In conclusion, automated carbon dioxide insufflation has statistically significant improvement in overall patient satisfaction compared with manual air insufflation for patients under 65 years of age.