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A pilot study to compare carbon dioxide and a polyethylene glycol solution as methods of distending the colon for clinical investigation

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Introduction: The use of warm water infusion has shown some potential to increase tolerance for colonoscopy and reduce the need for sedation.

Aim: compare tolerance of the two distension methods, assess the distension achieved and demonstrate the safe use of Klean Prep (KP) administered rectally.

Method: 21 healthy individuals aged 18–30 were administered the two methods of distension. Half received one CO₂ first followed by warmed KP or the reverse. The order was randomly assigned. They were given Buscopan and had an MRI of the colon positioned supine and then left lateral. Venous blood was sampled before and after the fluid infusion. A Visual Analogue Scale (VAS) was used to assess preference and degree of discomfort. Ethical approval was sought as appropriate.

Result: Overall there was no difference in discomfort scores between the two methods. There was a significant difference in preference between the genders, males preferring CO₂ and females KP ($p = 0.008$). Serum electrolytes and plasma osmolarity were unaffected by the use of KP. Segmental distension scores from the MR images showed KP achieving better distension when supine in all segments except the sigmoid and when left lateral in the Descending, Transverse and Ascending segments ($p < 0.05$ for all).

Conclusion: Warm water infusion appears to be as well tolerated as CO₂. It appears to distend the colon better than CO₂ for radiological examination and potentially for colonoscopy. It should be considered a viable and safe option for colon distension and merits further investigation with an older patient group.

Take-home message: Warm water infusion has the potential to improve the tolerance for clinical investigation of the colon and may even be the better method of distension for both endoscopic and radiological examination.