

Neostigmine improved acute colonic pseudo-obstruction quickly and effectively

Ponec RJ, Saunders MD, Kimmey MB. Neostigmine for the treatment of acute colonic pseudo-obstruction. *N Engl J Med.* 1999 Jul 15;341:137-41.

QUESTION

In patients with acute colonic pseudo-obstruction (Ogilvie syndrome) unresponsive to conservative therapy, does neostigmine induce clinical response, reduce distention, and prevent recurrence?

DESIGN

Randomized {allocation concealed*}, blinded (patients, clinicians, and outcome assessors),* placebo-controlled trial with 3-hour follow-up.

SETTING

University-affiliated hospitals in Washington State, United States.

PATIENTS

21 hospitalized patients (median age 66 y, 90% men) with acute colonic pseudo-obstruction (marked colonic distention in the absence of mechanical obstruction). Inclusion criteria were cecal diameter \geq 10 cm on plain radiographs and failure to improve after 24 hours of conservative therapy. Exclusion criteria were heart rate $<$ 60 beats/min, systolic blood pressure $<$ 90 mm Hg, signs of bowel perforation, active bronchospasm requiring medication, treatment with prokinetic drugs in the previous 24 hours, or serum creatinine levels $>$ 265 μ mol/L (3 mg/dL). Follow-up was complete.

COMMENTARY

For endoscopists, colonic decompression in acute colonic pseudo-obstruction is one of the least attractive procedures. Patients frequently are sick and unable to take a bowel preparation before the procedure, which is also often done under less-than-ideal circumstances. Perforation can occur, with reported rates of approximately 3% (1).

Clinicians usually start to worry when the colonic diameter exceeds 12 cm, especially if the cecum is involved. Usually such conservative measures as correction of electrolyte abnormalities, nasogastric suction, placement of rectal tubes, and if possible withdrawal of narcotic drugs that decrease motility are tried first.

The results of the study by Ponec and colleagues are impressive and highly relevant. The accompanying editorial (2) also discusses the diagnosis and initial conservative treatments and emphasizes some of the difficulties in treating colonic pseudo-obstruction. These study results will prompt most clinicians to try neostigmine before proceeding to colonic decompression because neostigmine works quickly ($<$ 5 min) and effectively. The effect of neostigmine

INTERVENTION

Patients were allocated to intravenous neostigmine, 2 mg given over a period of 3 to 5 minutes ($n = 11$), or placebo ($n = 10$). Patients remained supine for 60 minutes and were monitored. If distention was not clinically reduced after 3 hours, patients received open-label neostigmine and were monitored for 3 more hours.

MAIN OUTCOME MEASURE

Immediate clinical response (passage of flatus or stool with a reduction in abdominal distention within 30 min of injection).

MAIN RESULTS

Median response time was 4 minutes for all patients who responded to treatment. Patients in the neostigmine group had a higher rate of immediate clinical response ($P < 0.001$) (Table) and greater decreases in abdominal circumference (median 7 cm for neostigmine vs 1 cm for placebo, $P = 0.007$), cecal diameter (5 vs 2 cm, $P = 0.03$), and transverse colon diameter

(4 vs 0 cm, $P < 0.001$) than did patients in the placebo group. 8 patients received open-label treatment (7 in the placebo group and 1 in the neostigmine group) and all responded. Increased abdominal pain occurred and was moderate to severe in 4 patients and mild in 9 patients who received neostigmine. 2 patients receiving neostigmine needed atropine because of bradycardia.

CONCLUSION

In patients with colonic pseudo-obstruction unresponsive to conservative therapy, neostigmine decompressed the colon quickly and safely.

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*See Glossary.

†Information supplied by author.

Neostigmine vs placebo for colonic pseudo-obstruction after failure of conservative treatment†‡

Outcome within 30 min	Neostigmine	Placebo	RBI (95% CI)	NNT (CI)
Clinical response§	91%	0%	Infinity	2 (2 to 2)

‡Abbreviations defined in Glossary; RBI, NNT, and CI calculated from data in article.

§Passage of flatus or stool with reduction in distention.

(which has a half-life of 80 min), however, may not last. Indeed, 3 neostigmine-treated patients in the study later needed colonic decompression. Nevertheless, 24 hours after neostigmine was given, a clinically important benefit to patients remained in favor of treatment. Bradycardia and bronchospasm are recognized side effects, and caution is needed in some patients. I do not doubt that most clinicians will try neostigmine before colonoscopy in appropriate patients on the basis of the results of this study.

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References

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