

Title:

Neostigmine - The underutilized drug worth remembering

Authors:

Carolina Broco Fernández, Ana Belén Domínguez Carbajo, Santiago Vivas Alegre, Verónica Patiño Delgadillo, Laura Alcoba Vega, Francisco Jorquera Plaza

DOI: 10.17235/reed.2025.11038/2024

Link: [PubMed \(Epub ahead of print\)](#)

Please cite this article as:

Broco Fernández Carolina, Domínguez Carbajo Ana Belén, Vivas Alegre Santiago, Patiño Delgadillo Verónica, Alcoba Vega Laura, Jorquera Plaza Francisco. Neostigmine - The underutilized drug worth remembering. Rev Esp Enferm Dig 2025. doi: 10.17235/reed.2025.11038/2024.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Neostigmine - The underutilized drug worth remembering

Carolina Broco Fernández^a, Ana Belén Dominguez Carbajo^a, Santiago Vivas Alegre^a,
Verónica Patiño Delgadillo^a, Laura Alcoba Vega^a, Francisco Jorquera Plaza^a.

(a) Servicio de Aparato Digestivo. Complejo Asistencial Universitario de León. León,
Spain.

Correspondence: Carolina Broco Fernández

e-mail: brc.caro@gmail.com

Abstract:

Ogilvie syndrome, a rare intestinal motility disorder associated with parasympathetic plexus dysfunction, can lead to severe complications like ischemia and perforation in hospitalized patients with significant comorbidities. This retrospective observational study assessed the efficacy and safety of neostigmine in treating Ogilvie syndrome at our center from January 2021 to December 2023. Thirteen patients received neostigmine after failing initial measures such as electrolyte correction, decompression, and intravenous prokinetics. Patients had a mean age of 66 years, predominantly male (77%), with 54% on polypharmacy. Neostigmine was administered in critical care settings under continuous monitoring. Symptom resolution occurred in 70% of cases, with a single dose achieving an 86% success rate in 54% of patients. Two doses were required for the remaining 46%, with a 50% success rate. No severe adverse reactions were observed. Neostigmine demonstrated high efficacy and safety in managing Ogilvie syndrome, highlighting its potential as a first-line therapeutic alternative to more invasive interventions.

Keywords: Ogilvie síndrome. Neostigmine. Gastrografin.

Dear Editor,

Ogilvie syndrome, a rare motility disorder of the intestine, has recently been associated with dysfunction of the parasympathetic plexus of the colon. This leads to decreased muscle tone, resulting in gradual distension and subsequent obstruction. The primary at-risk population comprises hospitalized patients with significant comorbidities. Prolonged obstruction may lead to complications such as ischemia and perforation, both associated with high mortality rates.

To evaluate the efficacy, safety, and therapeutic role of neostigmine in the treatment of Ogilvie syndrome, we conducted a retrospective observational study at our center from January 2021 to December 2023. A total of 13 patients who had received at least one dose of neostigmine after the failure of initial measures—including electrolyte balance correction, nasogastric and rectal decompression, and intravenous prokinetics (erythromycin)—were included. Clinical variables at onset, the method of neostigmine administration, and patient outcomes were recorded.

The included patients had a mean age of 66 years, with males representing the majority (77%). At the time of admission, 54% of the patients were on five or more medications. All patients were bedridden due to underlying conditions, primarily SARS-CoV-2 pneumonia (54%), cardiac arrest with neurological sequelae (15%), abdominal surgical intervention (15%) and polytrauma (1%). Neostigmine was administered in critical care units (recovery or intensive care) with continuous monitoring of vital signs.

Resolution of symptoms was achieved in 70% of cases. A single dose of neostigmine was administered to 54% of the patients, with an efficacy rate of 86%. The remaining 46% required two doses, which were effective in 50% of these cases. The treatment was well tolerated in all patients, with no severe adverse reactions reported.

66% of patients in whom neostigmine was ineffective achieved intestinal motility recovery after the administration of Gastrografin, a radiological contrast agent commonly used in intestinal obstruction cases, showing a favorable response rate.











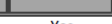







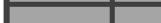
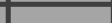
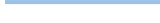
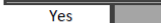
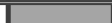
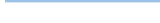
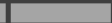
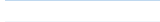
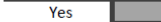


In conclusion, neostigmine proved to be an effective and safe therapeutic option for managing Ogilvie syndrome, achieving a high resolution rate with one or two doses and without significant complications. These findings suggest that neostigmine could be considered more frequently as an alternative to more invasive and higher-risk interventions, such as colonoscopy. Moreover, considering that Gastrografin has demonstrated efficacy in resolving obstructive conditions, it seems reasonable to propose its potential utility in the management of pseudo-obstructive syndromes.

Accepted Article

References:

1. Arthur T, Burgess A. Acute Colonic Pseudo-Obstruction. Clin Colon Rectal Surg. 2022;35(3):221-226. Published 2022 Aug 12. doi:10.1055/s-0041-1740044
2. Liu JJ, Venkatesh V, Gao J, Adler E, Brenner DM. Efficacy and Safety of Neostigmine and Decompressive Colonoscopy for Acute Colonic Pseudo-Obstruction: A Single-Center Analysis. Gastroenterology Res. 2021;14(3):157-164. doi:10.14740/gr1394
3. Kayani B, Spalding DR, Jiao LR, Habib NA, Zacharakis E. Does neostigmine improve time to resolution of symptoms in acute colonic pseudo-obstruction?. Int J Surg. 2012;10(9):453-457. doi:10.1016/j.ijso.2012.08.008
4. Tasleem A, Finkelstein A, Waheed A. Ogilvie Syndrome, Bradycardia, and Neostigmine. Clin Med Insights Case Rep. 2023;16:11795476231184929. Published 2023 Jul 11. doi:10.1177/11795476231184929
5. Lawson Health Research Institute. Therapeutic Role of Gastrografin for the Management of Small Bowel Obstruction in Children: A Canadian Multicenter Prospective Study. Clinical Trials Registry - ICH GCP. Available at: <https://ichgcp.net/clinical-trials-registry/NCT03573921>. Accessed December 21, 2024.

Table 1. Cases, Progression, and Outcomes.

Sex	Age	Polypharmacy	Cause of bedridden status	Doses administered	Response	First dose	Second dose	Gastrografin
Female	58	Yes	Cardiac arrest with neurological sequelae	2		No	No	No
Male	75	Yes	Aortic dissection with anoxic encephalopathy	1		Yes		
Male	69	Yes	Abdominal surgical intervention	1		Yes		
Male	74	No	Abdominal surgical intervention	2		No	No	Yes
Male	60	Yes	Cardiac arrest with neurological sequelae	1		Yes		
Male	57	Yes	SARS-CoV-2 pneumonia	2		No	No	Yes
Male	72	No	SARS-CoV-2 pneumonia	2		Yes	Yes	
Male	77	No	SARS-CoV-2 pneumonia	1		No		
Female	65	No	SARS-CoV-2 pneumonia	1		Yes		
Female	60	No	SARS-CoV-2 pneumonia	1		Yes		
Male	81	No	SARS-CoV-2 pneumonia	2		Yes	Yes	
Male	62	Yes	SARS-CoV-2 pneumonia	1		Yes		
Male	54	Yes	Polytrauma	2		Yes	Yes	