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Abstract

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[Aliment Pharmacol Ther.](#) 2000 Nov;14(11):1429-34.

## Nitric oxide mediates a therapeutic effect of nicotine in ulcerative colitis.

[Green JT](#)<sup>1</sup>, [Richardson C](#), [Marshall RW](#), [Rhodes J](#), [McKirdy HC](#), [Thomas GA](#), [Williams GT](#).

### Author information

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### Abstract

#### BACKGROUND:

Ulcerative colitis is a condition of nonsmokers in which nicotine is of therapeutic benefit.

#### AIMS:

To examine the in vitro effect of nicotine on colonic smooth muscle activity and the role of nitric oxide (NO) as a mediator.

#### METHODS:

Nicotine, 1-10 microM, was administered to strips of circular muscle from the distal sigmoid colon of 9 patients with active ulcerative colitis and 18 with colorectal cancer. The effect of electrical field stimulation (EFS) was examined before nicotine was added. Finally L-NAME, a NO synthetase inhibitor, was added before nicotine was administered again.

#### RESULTS:

Muscle strips developed similar spontaneous resting tone. In response to EFS, ulcerative colitis tissue developed lower tensions than the controls. Nicotine significantly reduced the resting tone and peak tension after EFS, with a greater effect in controls. With L-NAME, peak tensions were increased more in ulcerative colitis than controls, and nicotine produced a much smaller reduction.

#### CONCLUSIONS:

Nicotine reduces circular muscle activity, predominantly through the release of nitric oxide-this appears to be 'up-regulated' in active ulcerative colitis. These findings may explain some of the therapeutic benefit from nicotine (and smoking) in ulcerative colitis and may account for the colonic motor dysfunction in active disease.

## Comment in

- Nicotine-induced NO release in colitis. [Aliment Pharmacol Ther. 2001]

PMID:

11069313 [PubMed - indexed for MEDLINE] **Free full text**

## MeSH Terms, Substances

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- [Up-Regulation/drug effects](#)

### Substances

- [Enzyme Inhibitors](#)
- [Free Radical Scavengers](#)
- [Ganglionic Stimulants](#)
- [Nitric Oxide](#)
- [Nicotine](#)

