Letter to the Editor

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Re: Red Hot Chilli Consumption Is Harmful in Patients Operated for Anal Fissure – A Randomized, Double-Blind, Controlled Study

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Dear Sir,

Gupta [1] in his study shows that consumption of red chilies after anal fissure surgery should be forbidden to avoid postoperative symptoms. He demonstrates this in a randomized, double-blind, controlled study by feeding his patients postoperatively with capsules of capsaicin, the spicy component contained in plants of the genus *Capsicum*. Patients treated with capsaicin postoperatively had more symptoms such as pain and anal burning. We read this paper with interest and agree in part with the author's findings. Although Gupta's data are reported in patients operated for anal fissure, we previously demonstrated an activation of the transient receptor potential vanilloid 1 (TPVR1), the receptor for capsaicin, in patients operated due to hemorrhoidal disease [2]. In our study a direct correlation of TPVR1 immunoreactivity in anal tissue and signs of thrombosis on the pathology report were found. If we assume that signs of thrombosis are an expression of disease severity, as we have learned from clinical experience, this suggests the direct involvement of capsaicin in the natural course of hemorrhoidal disease. Gupta in fact assumes that the consumption of capsaicin increases the postoperative symptoms after anal surgery without any speculation about the physiology of the effect. Our molecular findings after hemorrhoidectomy are the pathophysiological answer to his study results. Activation of the TPVR1 from capsaicin may increase the permeability to Na^+ and Ca^{2+} ions from neural tissue, which in turn causes neuronal depolarization with sensation of burning, pain and release of neuropeptides, such as substance P and calcitonin gene-related peptide, thereby contributing to '*neurogenic inflammation*' [3].

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Reply

Pravin J. Gupta

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Dear Sir,

I respectfully acknowledge the positive appraisal of my paper by Prof. Francesco F. di Mola and others. My paper describes the ill effects of red chilies after anal fissure surgery [1]. As he has correctly pointed out, the aim of my study was based on our clinical assumption that consumption of red chili increases pain, anal burning and frequency of stool after anal fissure surgery. I have also carried out a similar study in patients during the post-hemorrhoidectomy period and found that consumption of chilies during this period increases postoperative pain, analgesic consumption, bleeding and pruritus [2].

I have mentioned in my discussion that capsaicin, the pungent principle of hot pepper, has the ability to excite and later defunctionalize a subset of primary afferent neurons. It has also been found that chilies cause rectal hyperalgesia, and a significant number of mucosal inflammatory cells and an increase in BrdU-immunoreactive nuclei were detected following mucosal exposure to capsaicin in the colon. I indeed failed to mention the very important findings of di Mola et al. [3] regarding activation of the transient receptor potential vanilloid 1 (TPRV1) by capsaicin. TRP channels are now included among the targets of peptide toxins, showing that chili peppers avert predators by activating TRP channels on sensory nerve fibers to elicit pain and inflammation [4]. TRPV1 might also play an important role in initiation and maintenance of persistent visceral hypersensitivity [5].

Nonetheless, an experimental study has found that capsaicin inhibits catecholamine secretion and synthesis via suppression of Na^+ and Ca^{2+} influx through a vanilloid receptor-independent pathway [6]. Another study on murine Peyer's patch (PP) cells has shown that capsaicin modulates T-cell-immune responses, and its immunomodulatory effects on murine PP cells is partly due to both a TRPV1-dependent and -independent pathway [7]. Capsaicin has been shown to activate and desensitize C-fiber and A-delta sensory nerve fibers. Stimulation causes an acute neurogenic response including vasodilatation, plasma extravasation and hypersensitivity [8], but in another study it was shown that capsaicin produces a dose-dependent vasoconstrictor effect in the mouse knee joint via TRPV1 receptor activation [9].

Looking toward these variable findings with regards to the action of capsaicin, it would be interesting to look out for more conclusive studies about the action of chili pepper on rectum and anal canal.

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