

## Efficacy and safety of stellate ganglion block in chronic ulcerative colitis

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### Abstract

Sympathetic system modulation by stellate ganglion blockade may modulate immune dysfunction and significantly improve symptoms of chronic ulcerative colitis.

**Key words:** Stellate ganglion block; Ulcerative colitis; Immune function; Chronic ulcerative colitis

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**Core tip:** Utility of stellate ganglion block (SGB) seems to be expanding rapidly at this time, finding of its effect on ulcerative colitis is novel. Dr. Zhao's explanation of the clinical observation seems to be increased blood flow. This theory may be refined based on prior reports of SGB having a significant immunologic effects. Since, ulcerative colitis is considered to be an auto immune disease, modulation immune system by SGB seems a more likely explanation. Further research of modulating immunologic system by utilizing sympathetic blocks may be spurred on by Dr. Zhao's observation.

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### TO THE EDITOR

Chronic ulcerative colitis (CUC) is a common disease and has significant impact on the quality of life of patients with CUC diagnosis. Its pathogenesis is unclear, however what is known is a close relationship between the disease and immune dysfunction. Furthermore, the expression of cytokines, particularly interleukin-8 (IL-8), is significantly increased during the disease course. Dr. Zhao, recently demonstrated a marked impact of stellate ganglion block (SGB) on CUC patients<sup>[1]</sup>. The impact of SGB has been to relieve abdominal pain, and reduce inflammatory factor levels, especially IL-8. The exact mechanism

of this effect is unknown, yet Dr. Zhao referenced 2 papers explaining the mechanism of the effect one by Dr. Shimizu. After SGB, the inflammatory chemokine IL-8 was reduced in patients in the experimental group, chemotaxis was inhibited...reducing inflammation<sup>[2]</sup>, that is inaccurate since Dr. Shimizu was not discussing SGB<sup>[2]</sup>. The other paper was by Dr. Mulvaney (where the primary author of current report was the senior author) studies have shown that the SGB. improves blood circulation by inhibiting the activity of the sympathetic nervous system<sup>[3]</sup>, it is not clear which circulation is being addressed and how long this vasodilation lasts. Actually, impact of SGB on circulation has been studied and has been demonstrated to have no impact<sup>[4]</sup>. Alternative explanation for the SGB effect on CUC could be plasma concentrations of epinephrine and norepinephrine (NE) reduction after SGB<sup>[5]</sup>. It is well known that the central nervous system modulates immune activity. There is evidence that the sympathetic nervous system affects the immune response. For example, in chemically sympathectomized animals, antibody and cell-mediated responses are altered<sup>[5]</sup>. Central effect of SGB on NE, leading to its reduction, has been postulated by Dr. Mulvaney to explain significant effect of SGB on post traumatic stress disorder (PTSD), a condition known to have elevated NE levels<sup>[3]</sup>. Further evidence exists as to the SGB impact on proinflammatory cytokines. Dr. Liu, while performing

SGB's on burn victims, reported SGB regulatory effects on early inflammatory response through inhibition of the IL-1 $\beta$ , IL-6, and TNF- $\alpha$  during severe trauma<sup>[4]</sup>. However, SGB did not have any impact on the anti-inflammatory cytokines IL-4 and IL-10 levels<sup>[4]</sup>. Yet regardless of the possible SGB mechanism as related to CUC, Dr. Zhao report adds to expending utility for SGB, and for that he should be commended.

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