Straube S, Derry S, Moore RA, McQuay HJ. Cervico-thoracic or lumbar sympathectomy for neuropathic pain and complex regional pain syndrome (Review). Cochrane Database of Systematic Reviews 2010; Issue 7, Art No. CD002918.

Design: Meta-analysis of randomized trials

PICOS:

- **Patients**: Patients of any age with neuropathic pain of any duration, excluding cancer patients and those with pain affecting the thoracic or abdominal viscera
- **Interventions**: Destructive chemical (alcohol or phenol) or surgical (open, endoscopic, laser, or radiofrequency ablation) sympathectomy, excluding celiac and trigeminal blocks or ablation
- **Comparison**: Placebo (sham) or other active treatment for neuropathic pain or CRPS
- **Outcomes**: Participant-reported pain relief (>=30% and >=50%) for a minimum of 4 weeks; secondary outcomes could include pain relief <30% of lasting less than 4 weeks; adverse events also were sought
- **Study types**: Randomized controlled double-blind trials with at least 10 participants per treatment arm; inpatient or outpatient settings; non-blinded studies and abstracts only were excluded

Search strategy and selection:

- Databases included MEDLINE, EMBASE, Cochrane CENTRAL, and the Oxford Pain Relief Database
- Personal communications with experts in the field of neuropathic pain and reference lists of review articles were also included
- Two authors independently selected the articles and rated them for quality, with disagreements resolved by discussion
- Quality of study was based on risk of bias on a 5 point scale which considers randomization, blinding, and study withdrawals/dropouts
- Data synthesis (meta-analysis) was planned if there were at least 2 studies and at least 200 participants, with a summary of the relative benefit of treatment and numbers needed to treat (for benefits) and needed to harm (for adverse effects)

Results:

- Only one study with 20 patients met the selection criteria, and it compared radiofrequency (RF) ablation (n=10) with phenol injection (n=10)
- No studies with placebo or sham control groups was found
- The one included study had a high quality score with a low risk of bias; the small sample size was considered a limitation in its quality
- The study reported that both groups had reductions from initial pain scores of 8 or 9 on a scale from 0-10 to about 4/10 after one day; the scores remained at 3 or 5 for four months (dichotomous pain responses were not reported)
- No differences were found between RF and phenol in efficacy

- The number of serious adverse events was not reported, but one patient in the phenol group developed post-sympathectomy neuralgia

Authors' conclusions:

- The practice of sympathectomy, both chemical and surgical, for neuropathic pain is based on poor quality evidence
- Lower quality evidence (case series and case reports) have been supportive of sympathectomy
- Current evidence does not suggest that there are large differences between different types of sympathectomy
- Because serious complications are possible, the use of sympathectomy should be rare outside a research setting, in carefully selected patients after failure of other treatment options
- Blinding, even when difficult to achieve effectively, is necessary if bias is to be limited in clinical trials

Comments:

- The only study of sympathectomy published since the release of this review was a case series of sympathectomy for treatment of palmar and plantar hyperhidrosis
- In the absence of better data, no evidence statement can be made concerning the efficacy of sympathectomy for neuropathic pain

Assessment: Adequate for lack of evidence of sympathectomy for neuropathic pain