Is Gabapentin more effective than TCA's in controlling neuropathic pain?

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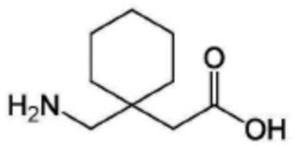
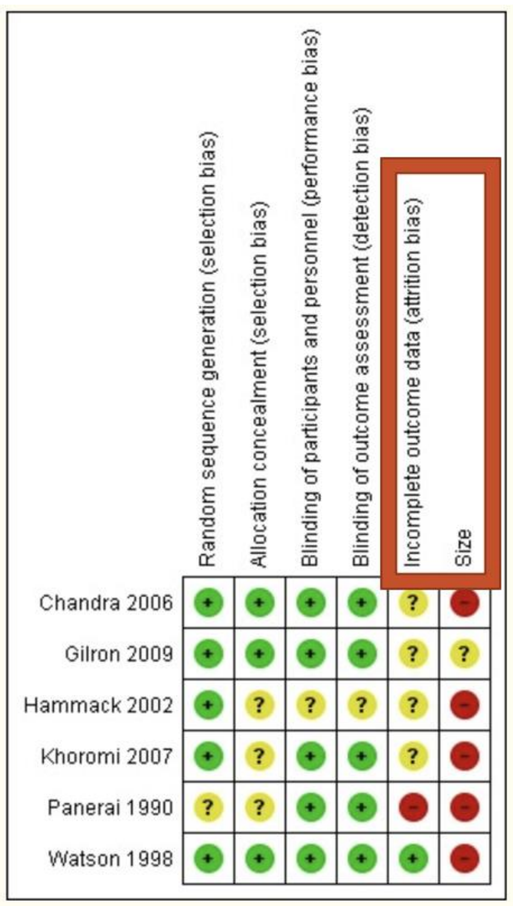
Question

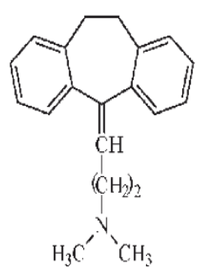
Is Gabapentin more effective than tricyclic antidepressants in controlling neuropathic pain?

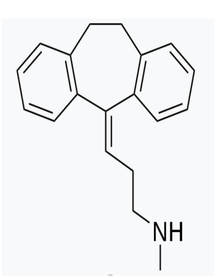
Evidence-Based Answer

- Gabapentin is better than amitriptyline in treating painful diabetic neuropathy (SOR:B).
- Gabapentin doses of 1800mg to 3600 mg daily significantly reduces neuropathic pain, specifically in painful diabetic neuropathy (PDN) and post-herpetic neuralgia (PHN) (SOR:A).
- There is not sufficient evidence showing efficacy of nortriptyline in tre neuropathic pain (SOR:A).









Summarized Data Review

A systemic review assessed the efficacy of gabapentin (versus placebo or another medication) for neuropathic pain in adults with PHN and PDN. It incorporated 37 studies of 5914 participants (>=18 years, both genders), most studies used oral gabapentin (>=1200mg/day) and included randomized, double-blind trials of 4 to 12 weeks. [2] In PHN, more participants (32%) had substantial benefit (at least 50% pain relief or PGIC much improved) with gabapentin than placebo (17%) (RR1.8 (95% CI 1.5 to 2.1); NNT 6.7 (5.4 to 8.7); 8 studies, 2260 participants, moderate-quality evidence). In PDN, more participants (38%) had substantial benefit (at least 50% pain relief or PGIC very much improved) with gabapentin than with placebo (21%) [RR 1.9 (95% CI 1.5 to 2.3); NNT 5.9 (4.6 to 8.3); 6 studies, 1277 participants, moderate-quality evidence]. [2] Adverse effects of gabapentin included dizziness, somnolence, and gait disturbance.

Another systemic review evaluated the efficacy of nortriptyline for neuropathic pain included 6 studies treating 310 participants with various neuropathic pain conditions including PDN and PHN. It included only RCT's with double-blind assessment. Most studies indicated equivalent benefit from nortriptyline comparing with amitriptyline, gabapentin, morphine, or placebo. The data could not be pooled and there were flaws in the studies due to small sample size and possible attrition bias. No study provided evidence for any outcome. There was no indication that nortriptyline (commonly at 50-100 mg/day) was more effective in PHN. Also, more people experienced adverse events with nortriptyline (dry mouth, constipation, and postural hypotension) than with placebo. [3]

Summarized Data Review

An open-label pilot study compared the efficacy of gabapentin vs. amitriptyline in painful diabetic neuropathy included 25 type II diabetic patients with PDN in a 12-week, prospective, randomized trial. Pain intensity scores were documented as 0 (none) to 4 (excruciating). Gabapentin (mean dose of 1785±351mg/ day) reduced greater pain than amitriptyline (mean dose of 53±16mg/day). Mean final scores were 1.0 (1.9 lower than baseline) for gabapentin and 1.5 (1.3 lower than baseline) for amitriptyline, which was significantly better (P=0.026). This study was however limited by its small sample size and lack of blinding. [1]

Results:

Gabapentin resulted in greater pain reduction

Group	Variable	Baseline pain score	Final pain score	Change in pain score	*P* value vs. baseline	*P* value between treatments
Gabapentin	Mean	2.9	1.0	−1.9	<0.01	
	Standard deviation	0.8	0.7	0.8		0.026
Amitriptyline	Mean	2.8	1.5	−1.3	<0.01	
	Standard deviation	0.8	0.8	0.6		

Gabapentin resulted in greater paresthesia reduction

Group	Variable	Baseline paresthesia score	Final paresthesia score	Change in paresthesia score	*P* value vs. baseline	*P* value between treatments
Gabapentin	Mean	3.0	1.2	−1.8	<0.01	
	Standard deviation	0.7	0.8	0.7		0.04
Amitriptyline	Mean	2.5	1.6	−0.9	<0.01	
	Standard deviation	0.8	0.7	0.5		

References

[1] Dallocchio, Buffa, Mazzarello, Chiroli. Gabapentin vs. Amitriptyline in Painful Diabetic Neuropathy: An Open-Label Pilot Study. *Journal of Pain and Symptom Management.* Vol. 20 No. 4 Oct 2000; 280-5. [STEP 2]

[2] Wiffen, Derry, Bell, Rice, Tolle, Phillips, Moore. Gabapentin for chronic neuropathic pain in adults. *Cochrane Database of Systematic Reviews* 2017, Issue 6. Art. No.: CD007938. [STEP1]

[3] Derry, Wiffen, Aldington, Moore. Nortriptyline for neuropathic pain in adults. *Cochrane Database Systematic Review.* 2015; Issue 1. Art. No.: CD011209. [STEP 2]