

# A pain in the skin? A skin biopsy study on the mechanisms underlying ongoing burning pain in diabetic neuropathy

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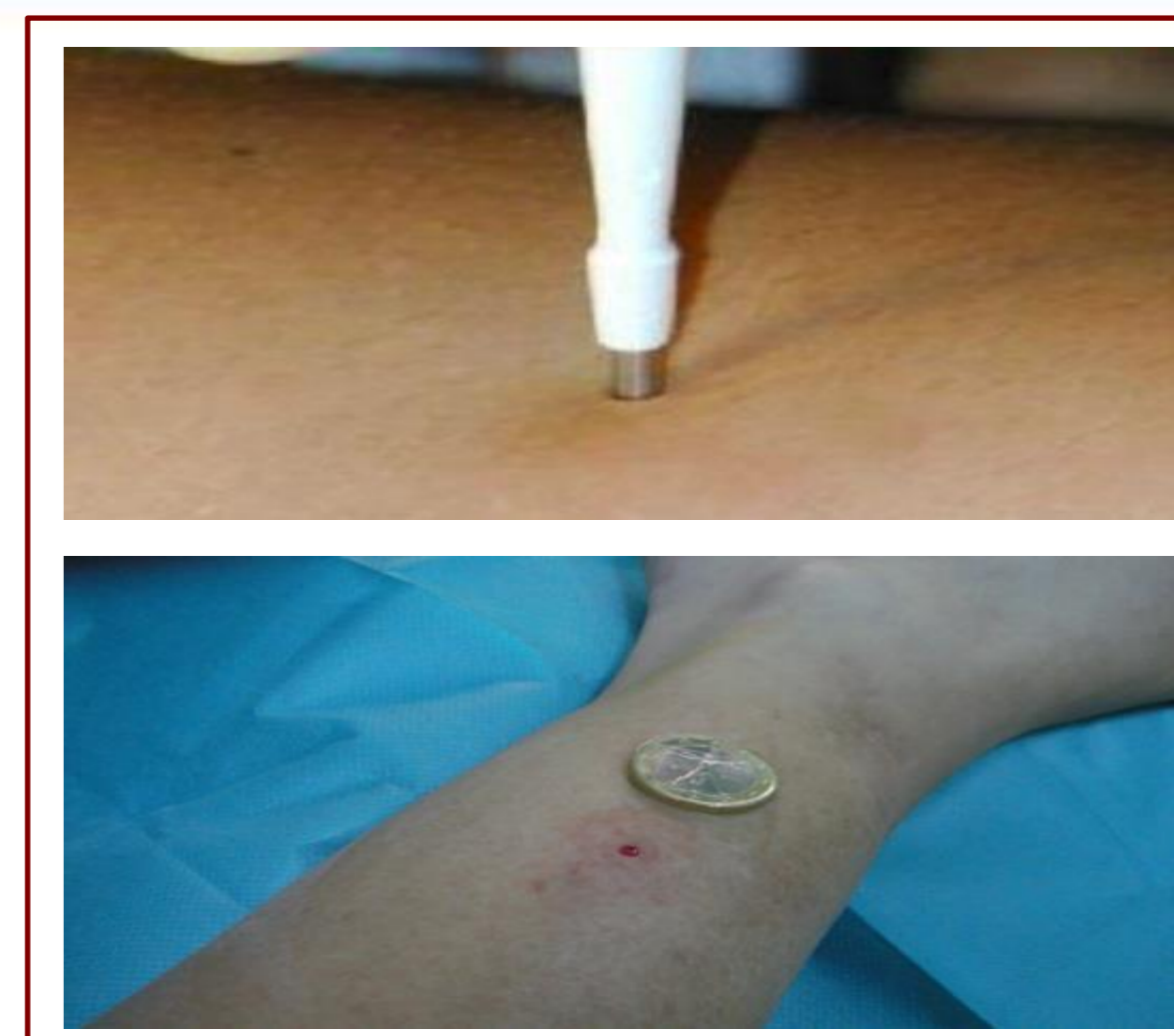
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**Introduction:** Ongoing burning pain is one of the most representative type of pain in patients with painful diabetic neuropathy. Animal and human studies suggested that this type of pain might arise from abnormally active regenerating sprouts of damaged nociceptive C fibres.

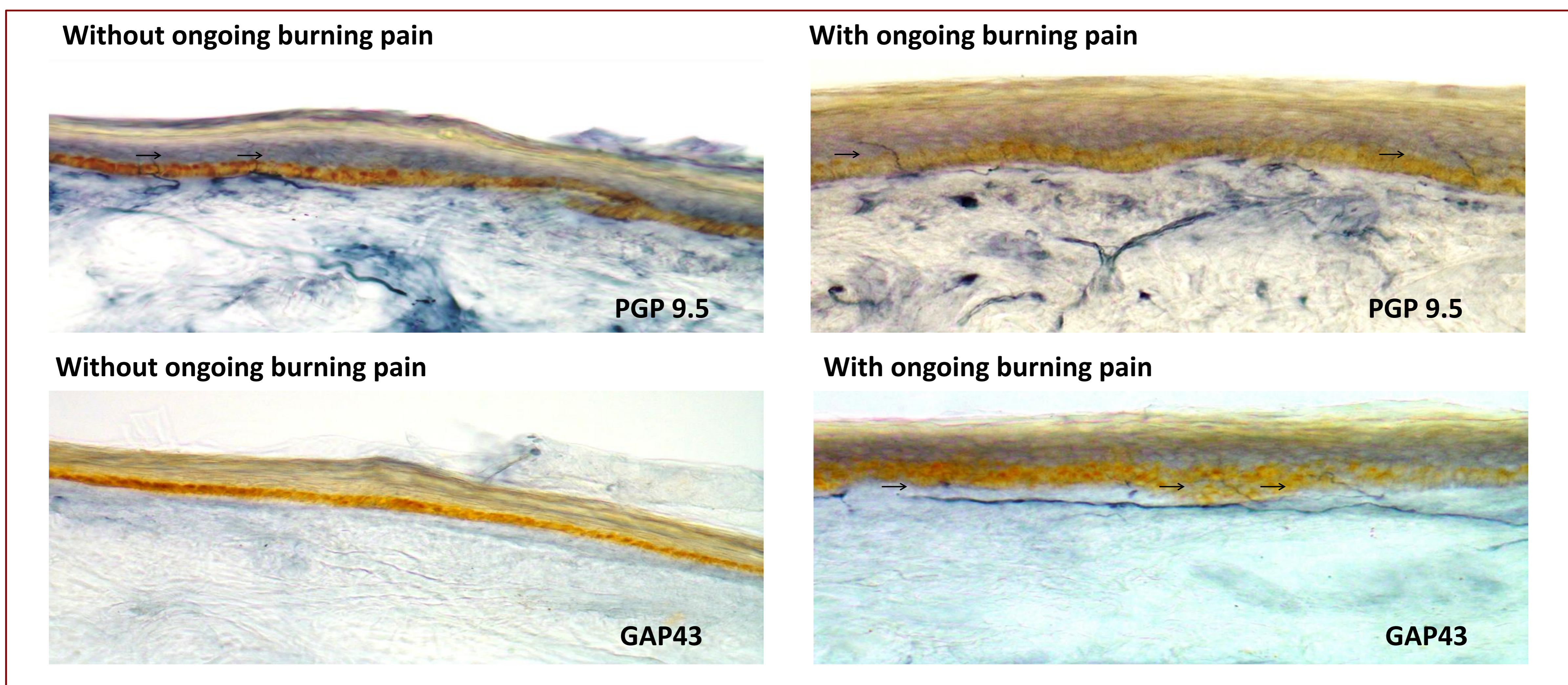
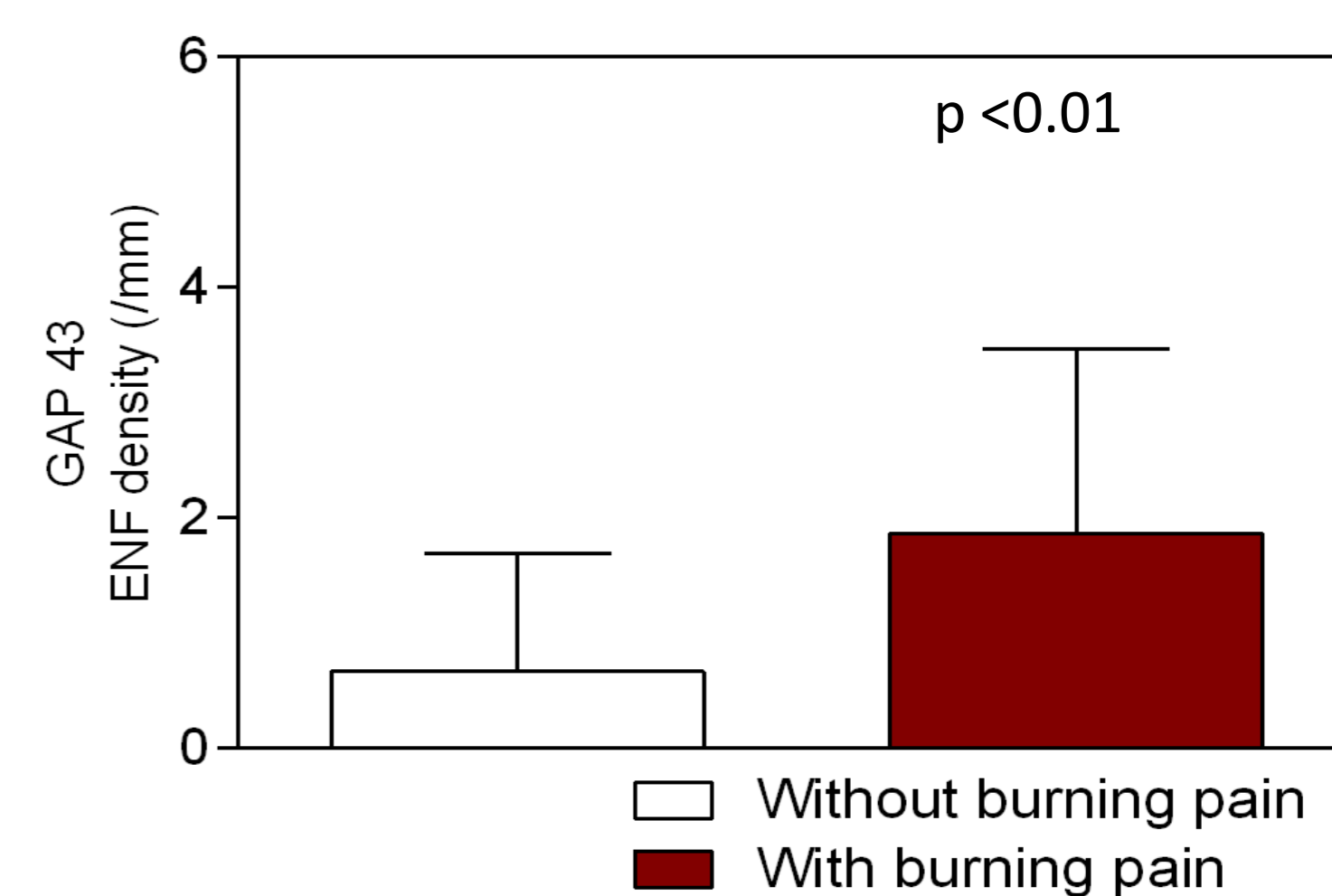
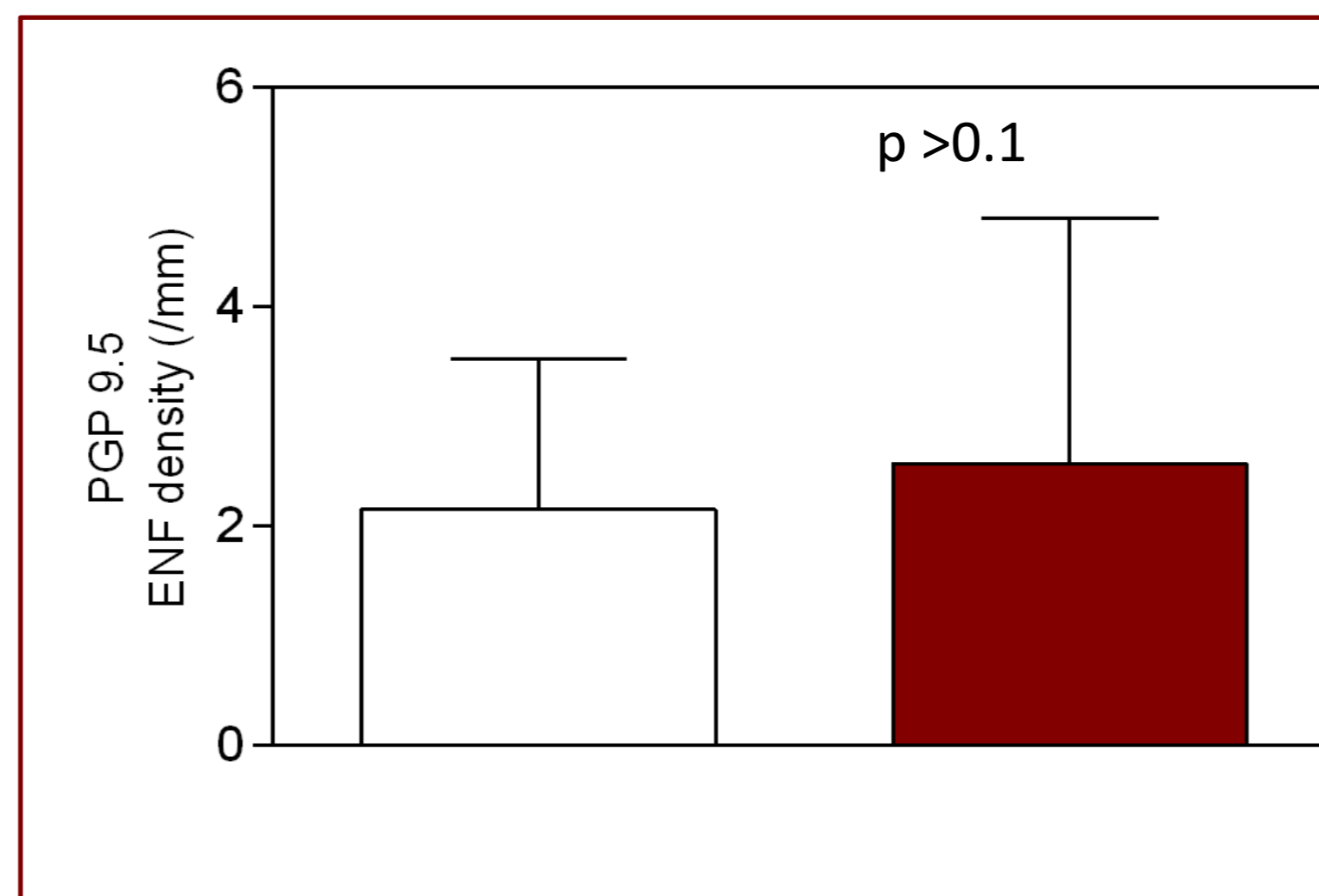
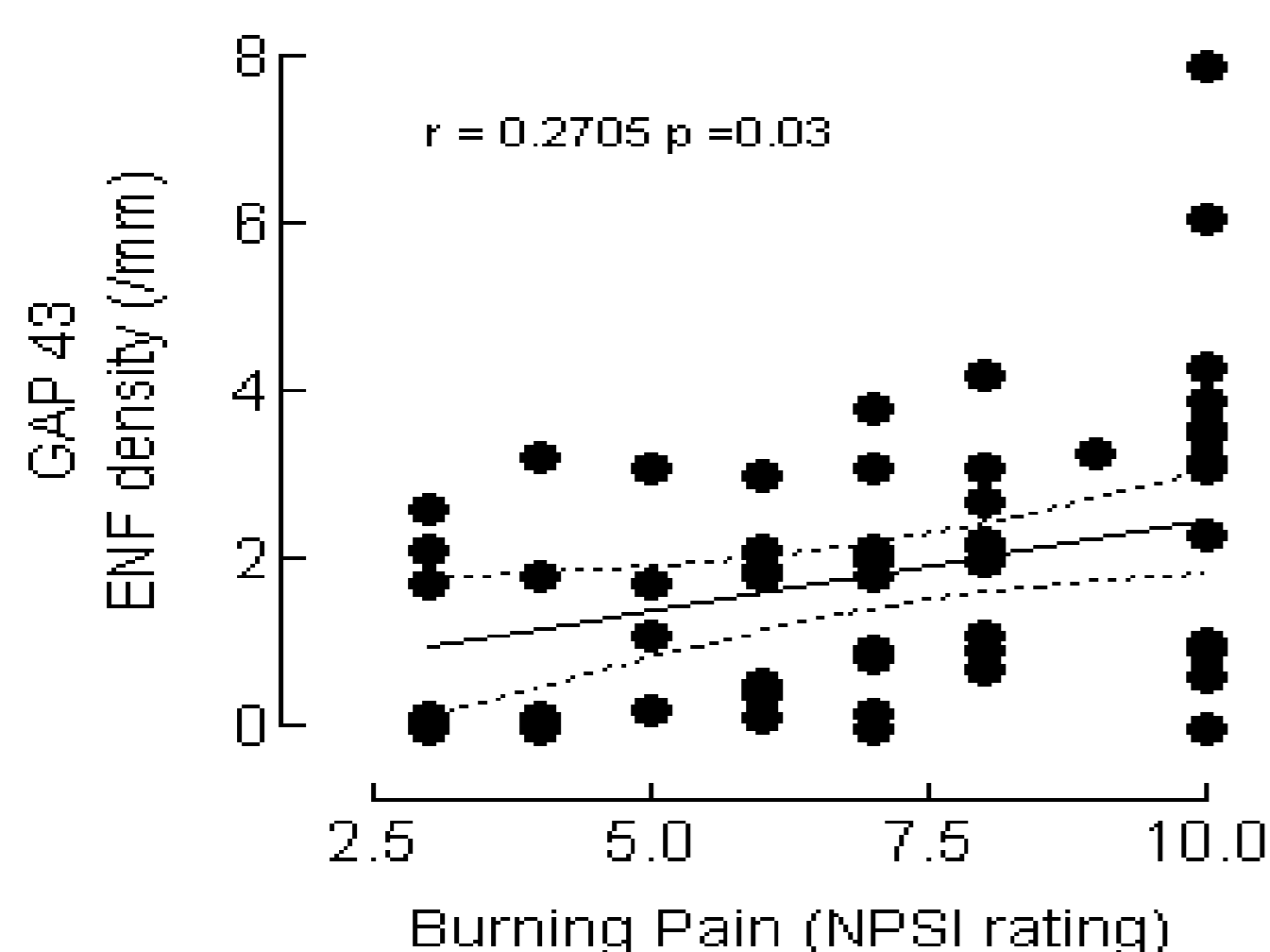
**Methods:** We enrolled 118 consecutive patients with diabetic neuropathy: 92 with and 26 without neuropathic pain. All patients underwent the Neuropathic Symptom Inventory to identify and quantify ongoing burning pain and the skin biopsy. The intraepidermal nerve fibre (IENF) density was assessed using the PGP9.5, to quantify the total IENF density, and the GAP43 to quantify the regenerating sprouts.

**Results:** Comparing skin biopsy study in patients with and without ongoing burning pain, we did not find significant difference in the IENF density as assessed with PGP 9.5 antibodies. ( $p > 0.1$ ). We found that GAP43 IENF density was higher in patients with than in those without ongoing burning pain ( $p < 0.0001$ ), and correlated with the severity of this type of pain ( $r = 0.2705$ ;  $p = 0.03$ ).

**Discussion:** Our study showing that ongoing burning pain is associated with GAP43 expression indicates that this type is probably mediated by regenerating sprouts of damaged C fibres.



	PGP 9.5	GAP 43	GAP43/PGP 9.5
Pts with Ongoing Burning Pain (n=62)	2.57 ± 2.24	1.86 ± 1.6	1.89 ± 4.88
Pts without Ongoing Burning Pain (n=30)	2.15 ± 1.38	0.66 ± 1.03	0.4 ± 1.13
P	0,8	<0,0001*	<0,0001*



**Figure 1.** Skin biopsy representative findings. Bright-field images ( X 20 magnification) showing intraepidermal nerve fibre density at the distal leg in patients with and without ongoing burning pain, assessed using the PGP9.5, to quantify the total IENF density, and the GAP43 to quantify the regenerating sprouts.

**References:**

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