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Duloxetine versus amitriptyline in the preventive treatment of chronic migraine: a comparative study

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Introduction
Migraine is a prevalent and disabling neurological disorder with a negative impact on quality of life and productivity. Diagnosis follows the ICHD-3 criteria, and management includes abortive and preventive treatments—prophylaxis being indicated when the patient presents four or more headache days per month or when attacks significantly impact personal and professional life. Among non-specific drugs used in prevention, amitriptyline (AMI), a tricyclic with action on serotonin and norepinephrine reuptake, has moderate support in current guidelines, while duloxetine (DUL), a selective serotonin and norepinephrine reuptake inhibitor with a better tolerability profile, represents an increasingly used alternative in clinical practice. Direct comparative studies between both are still scarce, justifying the present study.

Objective
To compare the clinical efficacy and therapeutic response speed of duloxetine versus amitriptyline in the preventive treatment of chronic migraine during outpatient follow-up.

Methods
A longitudinal prospective observational pilot study involving 13 chronic migraine patients (ICHD-3). Patients provided informed consent and were followed for ≥6 months at the Oswaldo Cruz University Hospital Headache Clinic. Patients taking AMI 25 mg or DUL 30 mg were allocated in a 1:1 ratio. Variables included demographics, monthly pain days, response time, comorbidities, and baseline HIT-6. Statistical analysis was performed using Epi Info 7.2.7, with calculation of frequencies, means, standard deviations, and 95% CI. Normality was assessed by the Shapiro-Wilk test, comparison between groups by the Mann-Whitney test, and the significance level was adjusted by Bonferroni correction (α=0,025).

Results
Thirteen female patients (mean age 45.8 ± 14.5 years) were analyzed. The AMI group (n=7) showed a mean response time of 3.0 ± 2.5 months (95% CI: 0.67–5.33) and a 76.4% reduction in monthly pain days. The DUL group (n=6) showed a response time of 1.3 ± 0.8 months (95% CI: 0.48–2.19) and a 71.7% reduction. Responder rates (≥50% reduction) were 83.3% for AMI and 80.0% for DUL. The response time difference did not reach statistical significance (U=30.0; p=0.165; α=0.025), though the 95% CIs did not overlap. Mean baseline HIT-6 was 59.6 ± 7.6. Comorbidities included anxiety (76.9%), hypertension (53.8%), and depression (38.5%). One AMI patient switched to DUL due to adverse effects (drowsiness/weight gain), maintaining attack control.

Conclusion
Both medications demonstrated efficacy in chronic migraine prophylaxis. Duloxetine showed a trend toward a faster therapeutic response compared to amitriptyline. Although lacking statistical significance—likely due to the small sample size—the non-overlapping 95% CIs provide relevant clinical evidence of this difference. The high prevalence of anxiety and depression aligns with the epidemiological profile of chronic migraine. Switching from AMI to DUL successfully illustrates the importance of tolerability in individualized treatment.

Keywords:
Migraine
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Migraine prevention

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