

POST-DURAL PUNCTURE HEADACHE AFTER DIAGNOSTIC LUMBAR PUNCTURE: INCIDENCE, CLINICAL PRESENTATION, AND ASSOCIATED FACTORS IN A NEUROLOGICAL COHORT

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Background. Post-dural puncture headache (PDPH) is a common complication of lumbar puncture. This study assessed its incidence, clinical features, treatment response, and factors associated with headache occurrence.

Methods. We retrospectively analyzed clinical and CSF data from patients undergoing diagnostic lumbar puncture at the Neurology Clinic of Fondazione Policlinico Universitario A. Gemelli IRCCS (Rome) between December 2024 and April 2026, with a minimum follow-up of 3 months. Patients were categorized according to post-procedural headache occurrence and fulfillment of ICHD-3 criteria for PDPH. Demographic, clinical, and CSF variables were compared using the Mann-Whitney U or Fisher's exact test, as appropriate. Patients requiring symptomatic treatment rated medication effectiveness on a 0–10 numerical scale.

Results. Among 54 patients, 37 (68.5%) developed headache after lumbar puncture, and 35/37 (94.6%) fulfilled ICHD-3 criteria for PDPH (64.8% of the cohort). Mean headache onset was 18.8 ± 16.6 hours after procedure and mean duration was 8.3 ± 8.8 days. Orthostatic headache was reported by 97.1% of patients, followed by neck pain/stiffness (65.7%), nausea (44.4%), photophobia (41.7%), vomiting (25.0%), and phonophobia (25.0%). Thirty patients (81.1%) required symptomatic treatment. Paracetamol alone was the most frequently used medication (15 patients; mean effectiveness score 4.83/10), followed by ibuprofen (4 patients; 4.50/10). Combinations of analgesic (most commonly paracetamol) and caffeine were used by 11 patients and showed significantly greater perceived effectiveness than paracetamol alone (mean score 6.82 vs 4.83; p = 0.046). Several patients also reported benefit from caffeine alone. Emergency department visits for headache within 3 months occurred in 14.3% of patients. Patients developing PDPH were significantly younger than those without headache (35.3 ± 11.4 vs 49.7 ± 12.0 years; p = 0.0002), whereas sex, pre-existing primary headache, headache subtype, and CSF parameters were not associated with PDPH.

Conclusions. PDPH was frequent despite standardized lumbar puncture procedures. Younger age was the only significant predictor of headache occurrence. Treatments containing caffeine provided greater patient-reported symptom relief than paracetamol alone, supporting a possible role of caffeine in modulating mechanisms involved in PDPH. Larger prospective studies are needed to confirm these findings and better define caffeine's therapeutic role.