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Multimodal analgesia for prevention of chronic post-surgical pain after orthopaedic oncology procedures

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Introduction: Orthopaedic oncology procedures commonly lead to chronic post-surgical pain, with a significant impact on patients' quality of life. The aim of this prospective study was to assess the efficacy of a multimodal preventive analgesic regimen applied perioperatively, as for prevention of chronic post-surgical pain and improvement in patients' quality of life and functional status.

Methods: Patients undergoing an orthopaedic oncology procedure were prospectively studied. Preventive analgesia included the administration of gabapentin 300 mg and duloxetine 30 mg the day before surgery (12 and 18 hours preoperatively), in addition to intravenous ketamine 0.25 mg/kg intravenously immediately prior incision. Regional anesthesia was additionally applied whenever possible (epidural or peripheral nerve blockade) and continued postoperatively up to the 3rd postoperative day. Gabapentin (300 mg BID) and duloxetine (30 mg OD) were continuously administered, up to the 10th postoperative day. Assessment included pain intensity (NRS 0-10), presence of neuropathic pain (S-LANSS scale) and quality of patients' life (EQ5D) preoperatively (baseline) as well as at 3 and 6 months postoperatively. Statistical analysis was performed using paired t-test ($p < 0.05$).

Results: Thirty six patients were studied, aged 54 ± 15 years. Six patients developed chronic post-surgical pain diagnosed as $\text{NRS} \geq 4/10$ at 3 months, and only 4 patients at 6 months. Only 1 patient had neuropathic pain at 3 months, and 2 patients at 6 months, diagnosed with S-LANSS score > 12 , all with amputation procedures. A significant reduction was observed in neuropathic pain scores at 3 and 6 months postoperatively compared to the preoperative values. Quality of life was not different, but functional status slightly deteriorated at 3 and 6 months.

Conclusions: Multimodal preventive pain management of patients undergoing orthopaedic oncology procedures seems to decrease the development of chronic post-surgical pain and the presence of neuropathic pain, 3 and 6 months postoperatively.