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Evaluasi Komparatif Efektivitas, Keamanan, dan Biaya Tramadol Versus Metamizol pada Tatalaksana Nyeri Pasien Pasca-Intervensi di RSUD Jayapura
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INTISARI

Nyeri pascaintervensi merupakan komplikasi umum setelah biopsi dan eksisi yang dapat memengaruhi kenyamanan serta kualitas hidup pasien. Di RSUD Jayapura, tramadol dan metamizol injeksi merupakan analgesik yang sering digunakan, namun bukti mengenai efektivitas, keamanan, dan *cost-effectiveness* keduanya masih terbatas. Penelitian ini bertujuan membandingkan efektivitas, kejadian efek samping, dan *cost-effectiveness* tramadol injeksi 100 mg dengan metamizol injeksi 1 g pada pasien pascaintervensi biopsi dan eksisi.

Penelitian observasional dengan desain kohort prospektif dilakukan di Instalasi Rawat Inap RSUD Jayapura pada Desember 2025–April 2026. Sebanyak 70 pasien direkrut secara *consecutive sampling* dan dikelompokkan berdasarkan terapi yang diterima. Efektivitas dinilai berdasarkan perubahan skor *Numeric Rating Scale* (ΔNRS), keamanan berdasarkan kejadian efek samping, sedangkan *cost-effectiveness* dianalisis menggunakan *Cost-Effectiveness Ratio* (CER) dan *Incremental Cost-Effectiveness Ratio* (ICER). Analisis statistik menggunakan *Wilcoxon Signed-Rank Test*, *Mann-Whitney U Test*, *Chi-square/Fisher Exact Test*, dan ANCOVA.

Hasil penelitian ini menunjukan bahwa kedua terapi menurunkan nyeri secara signifikan, dengan ΔNRS sebesar 3,20 ± 0,76 pada kelompok tramadol dan 3,06 ± 0,68 pada kelompok metamizol, tanpa perbedaan bermakna antar kelompok (p = 0,522). Hasil tetap konsisten setelah penyesuaian menggunakan ANCOVA (p = 0,416). Selama periode observasi tidak ditemukan efek samping. Tramadol memiliki nilai CER lebih rendah dibandingkan metamizol Antrain (Rp75.271 vs Rp90.057 per satu poin ΔNRS). Analisis ICER menunjukkan nilai negatif, yang mengindikasikan bahwa tramadol merupakan strategi dominan, yaitu memberikan efektivitas yang sedikit lebih tinggi dengan biaya yang lebih rendah dibandingkan metamizol Antrain. Dengan demikian, tramadol dan metamizol memiliki efektivitas yang sebanding, namun tramadol lebih *cost-effective* dengan profil keamanan yang baik selama periode observasi.

Kata Kunci: nyeri pascaintervensi, biopsi, eksisi, tramadol, metamizole

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ABSTRACT

Post-intervention pain is a common complication following biopsy and excision that may affect patient comfort and quality of life. At RSUD Jayapural, injectable tramadol and metamizole are commonly used for pain management; however, evidence regarding their effectiveness, safety, and cost-effectiveness remains limited. This study aimed to compare the effectiveness, adverse events, and cost-effectiveness of injectable tramadol 100 mg and injectable metamizole 1 g in patients undergoing biopsy and excision procedures.

This prospective observational cohort study was conducted at the inpatient wards of RSUD Jayapura from December 2025 to April 2026. A total of 70 patients were recruited using consecutive sampling and grouped according to the analgesic therapy received. Effectiveness was assessed using changes in the Numeric Rating Scale (ΔNRS), safety was evaluated based on adverse events, while cost-effectiveness was analyzed using the Cost-Effectiveness Ratio (CER) and Incremental Cost-Effectiveness Ratio (ICER). Statistical analyses were performed using the Wilcoxon Signed-Rank Test, Mann-Whitney U Test, Chi-square/Fisher Exact Test, and ANCOVA.

The results showed that both therapies significantly reduced pain, with a mean ΔNRS of 3.20 ± 0.76 in the tramadol group and 3.06 ± 0.68 in the metamizole group, with no significant difference between groups ($p = 0.522$). The findings remained consistent after adjustment using ANCOVA ($p = 0.416$). No adverse events were observed during the study period. Tramadol demonstrated a lower CER than branded metamizole (Antrain) (IDR 75,271 vs IDR 90,057 per one-point reduction in ΔNRS). ICER analysis yielded a negative value, indicating that tramadol was the dominant strategy, providing slightly greater effectiveness at a lower cost than branded metamizole. In conclusion, tramadol and metamizole demonstrated comparable effectiveness; however, tramadol was more cost-effective while both therapies showed a favorable safety profile during the observation period.

Keywords: *post-intervention pain, biopsy, excision, tramadol, metamizole.*