

INTISARI

Malignant Burkitt's Lymphoma Oral termasuk salah satu keganasan dalam rongga mulut dengan angka kematian tinggi. Non-Steroid Anti-Inflammation Drugs (NSAID) diketahui memiliki potensi dalam menghambat siklus sel kanker tubuh manusia. Salah satu antiinflamasi yang diketahui dapat menjadi pilihan terapi adalah Ibuprofen. Dalam perkembangannya, diketahui bahwa gugus karboksilat pada Ibuprofen mampu menghambat siklus sel kanker tubuh manusia termasuk kanker kolon, payudara, ovarium, dan lambung. Penelitian ini bertujuan untuk menguji potensi obat anti inflamasi Ibuprofen dalam menghambat pertumbuhan dan siklus sel *Malignant Burkitt's Lymphoma Oral* (Sel Raji).

Metode yang digunakan dalam penelitian ini adalah eksperimen laboratoris murni dengan rancangan penelitian *post-test only control group design*. Ibuprofen dengan konsentrasi 0,16; 0,31; 0,63; 1,25; 2,50; 5,0; dan 10,0 mg/mL dan Cisplatin (kontrol positif) dengan konsentrasi 3,1; 6,25; 12,5; 25; 50; 100; dan 200 µg/mL digunakan untuk uji Viabilitas menggunakan *MTT Assay* (3-[4,5-dimethylthiazol-2-yl]-2,5 diphenyl tetrazolium bromide) untuk mencari IC50. Analisis *Flowcytometry* digunakan konsentrasi Ibuprofen sebesar 0,27; 0,55; 1,09; dan 2,18 mg/mL dan konsentrasi Cisplatin sebesar 1,17 µg/mL untuk menguji hambatan siklus sel.

Hasil uji viabilitas didapatkan IC50 dari Ibuprofen sebesar 1,09 mg/mL dan Cisplatin sebesar 1,17 µg/mL. Hasil uji viabilitas menunjukkan bahwa Ibuprofen menghambat pertumbuhan sel Raji sebesar 6,43-99,95% dengan rerata hambatan sebesar 53,19%. Hasil *flowcytometry* menunjukkan bahwa Ibuprofen secara signifikan menghambat siklus sel Raji di fase G0/G1 seiring dengan peningkatan konsentrasi (0,27; 0,55; 1,09; dan 2,18 mg/mL) yang dipaparkan pada sel Raji. Kesimpulan pada penelitian ini adalah NSAID Ibuprofen mampu menghambat siklus sel di fase G0/G1 dan pertumbuhan sel *Oral Malignant Burkitt's Lymphoma*.

Kata kunci: *Non-Hodgkin Lymphoma*, *Malignant Burkitt's Lymphoma Oral*, Ibuprofen, Pertumbuhan Sel, Hambatan Siklus Sel.

ABSTRACT

Malignant Burkitt's Oral Lymphoma is a malignancy in the oral cavity with a high mortality rate. Non-Steroidal Anti-Inflammation Drugs (NSAIDs) are known to have the potential to inhibit the human body's cancer cell cycle. One of anti-inflammatory that is known to be a therapeutic option is Ibuprofen. During its development, it was discovered that the carboxylate group in Ibuprofen was able to inhibit the human body's cancer cell cycle, including colon, breast, ovarian and stomach cancer. This study aimed to investigate the potential of the anti-inflammatory drug Ibuprofen in inhibiting the Oral Malignant Burkitt's Lymphoma growth and cell cycle.

The method used in this research is a pure laboratory experiment with a post-test only control group design. Ibuprofen with a concentration of 0.16; 0.31; 0.63; 1.25; 2.50; 5.0; and 10.0 mg/mL and Cisplatin (positive control) with a concentration of 3.1; 6.25; 12.5; 25; 50; 100; and 200 µg/mL is used for viability using MTT Assay to look for IC₅₀. Flowcytometry analysis used an Ibuprofen concentration of 0.27; 0.55; 1.09; and 2.18 mg/mL and Cisplatin concentration of 1.17 µg/mL to investigate cell cycle inhibition.

The viability test results showed that the IC₅₀ of Ibuprofen was 1.09 mg/ml and Cisplatin was 1.17 µg/ml. The viability test results showed that Ibuprofen inhibited Raji cell growth by 6.43-99.95% with an average inhibition of 53.19%. Flowcytometry results showed that Ibuprofen significantly inhibited ($p < 0.05$) the Raji cell cycle in the G₀/G₁ phase along with increasing concentrations (0.27; 0.55; 1.09; and 2.18 mg/mL) exposed to Raji cells. The conclusion of this study is that the NSAID Ibuprofen is able to inhibit the cell cycle in the G₀/G₁ phase and the growth of Oral Malignant Burkitt's Lymphoma cells.

Key words: Non-Hodgkin Lymphoma, Oral Malignant Burkitt's Lymphoma, Ibuprofen, Cell Growth, Cell Cycle Arrest.