INTISARI

Wireless fidelity (WiFi) merupakan teknologi nirkabel untuk mengakses internet dengan memancarkan radiasi radiofrekuensi. Penggunaan WiFi semakin meningkat, namun efek biologis radiasi radiofrekuensi yang dipancarkan perangkat WiFi belum banyak diketahui. Penelitian ini bertujuan untuk mengetahui pengaruh radiasi radiofrekuensi perangkat *wireless fidelity* terhadap jumlah limfosit pada jaringan gingiva tikus *Sprague dawley* serta untuk mengetahui pengaruh lama pemaparan radiasi radiofrekuensi perangkat *wireless fidelity* terhadap jumlah limfosit pada jaringan gingiva tikus *Sprague dawley*

Tiga puluh ekor tikus *Sprague dawley* dibagi ke dalam 3 kelompok. Kelompok A sebagai kelompok yang tidak diberi paparan radiasi radiofrekuensi, kelompok B sebagai kelompok yang diberi paparan radiasi radiofrekuensi 6 jam per hari dan kelompok C sebagai kelompok yang diberi paparan radiasi radiofrekuensi 24 jam per hari. Pengambilan jaringan gingiva labial mandibula tikus dilakukan pada hari ke-10. Pembuatan preparat histologis menggunakan pewarnaan *Hematoxylin Eosin,* dilanjutkan dengan perhitungan jumlah limfosit dan analisis data.

Hasil penelitian menunjukkan bahwa antara ketiga kelompok penelitian terdapat perbedaan rerata jumlah limfosit yang signifikan ($p<0,05$). Kelompok yang terpapar radiasi radiofrekuensi 24 jam per hari memiliki rerata jumlah limfosit paling tinggi. Sedangkan, kelompok yang tidak diberi paparan radiasi radiofrekuensi memiliki rerata jumlah limfosit paling rendah. Kesimpulan penelitian ini yaitu radiasi radiofrekuensi perangkat *wireless fidelity* dapat mempengaruhi jumlah limfosit pada jaringan gingiva tikus *Sprague dawley* dan jumlah limfosit pada jaringan gingiva tikus *Sprague dawley* yang diberi paparan radiasi radiofrekuensi perangkat *wireless fidelity* 24 jam per hari lebih tinggi daripada tikus *Sprague dawley* yang diberi paparan radiasi radiofrekuensi perangkat *wireless fidelity* 6 jam per hari.

Kata Kunci : radiasi, radiofrekuensi, *wireless fidelity,* limfosit, gingiva

ABSTRACT

Wireless fidelity is a wireless technology to access internet by emitting radiofrequency radiation. The use of wireless fidelity has increased over time, but the biological effects of radiofrequency radiation emitted by wireless fidelity devices are not widely known. Aim of this study is to determine the effect of radiofrequency radiation on wireless fidelity devices on the number of lymphocytes in the gingival tissue of *Sprague dawley* rats and also to determine the effect of duration radiofrequency exposure on the number of lymphocytes in the gingival tissue of *Sprague dawley* rats.

This study used 30 *Sprague dawley* rats divided into 3 groups. Group A is a control group that was not given radiofrequency exposure, group B as group which was given radiofrequency exposure 6 hours a day and group C as group which was given radiofrequency exposure 24 hours a day. Extraction of rat's mandibular labial gingival tissue was carried out on the 10th day. Histological preparations made by *Hematoxylin Eosin* staining followed by calculation of lymphocytes and data analysis.

The results showed that between three study groups there were significant differences in mean lymphocyte counts ($p < 0.05$). Groups exposed to radiofequency radiation for 24 hours a day have the highest average lymphocyte count. Meanwhile, groups that do not exposed to radiofrequency radiation have the lowest average lymphocyte count. The conclusion of this study is that radiofrequency radiation from wireless fidelity devices can affect lymphocyte counts in the gingival tissue of *Sprague dawley* rats, and lymphocyte counts in the gingival tissue of *Sprague dawley* rats that were given radiofrequency radiation wireless fidelity devices 24 hours a day is higher than than those given radiofrequency 6 hours a day.

Key words : radiation, radiofrequency, wireless fidelity, lymphocyte, gingival