

INTISARI

Sinar X dapat menyebabkan kerusakan membran sel melalui proses pembentukan radikal bebas yang reaktif dalam sel. Oksidasi komponen lipid membran sel dapat menyebabkan peningkatan permeabilitas membran hingga berakibat pada kematian sel. Sel epitel bukal merupakan sel yang bersifat radiosensitif dan mendapat paparan radiasi sinar X dari radiografi panoramik. Penelitian ini bertujuan untuk mengamati efek paparan radiasi radiografi panoramik terhadap viabilitas sel epitel bukal manusia menggunakan metode *Trypan Blue Exclusion Test*.

Penelitian dilakukan di Departemen Radiologi Dentomaksilofasial RSGM Prof. Soedomo FKG UGM dengan subjek penelitian berjumlah 10 orang (lima pria dan lima wanita). Pengambilan sampel sel epitel bukal dilakukan sebelum paparan dan 30 menit setelah paparan radiasi radiografi panoramik. Sel epitel bukal kemudian diwarnai dengan *trypan blue* dan dimasukkan dalam hemositometer untuk diukur viabilitasnya menggunakan mikroskop cahaya.

Uji normalitas Shapiro-Wilk menunjukkan data hasil penelitian terdistribusi normal ($p > 0,05$). Hasil uji *Paired T-test* menunjukkan terdapat perbedaan yang signifikan ($p < 0,05$) pada viabilitas sel epitel bukal sebelum dan 30 menit setelah paparan radiasi radiografi panoramik, dengan penurunan sebesar 2,83%. Oleh karena itu dapat diambil kesimpulan bahwa terdapat efek paparan radiasi radiografi panoramik terhadap viabilitas sel epitel bukal yang diukur menggunakan *Trypan Blue Exclusion test*.

Kata kunci : Radiografi panoramik, viabilitas sel, *Trypan Blue Exclusion Test*, sel epitel bukal

ABSTRACT

X-Rays may cause damage to cell membranes through the formation of reactive free radicals in the cell. An oxidation of lipid components of cellular membranes can increase membrane permeability that lead to cell death. Buccal epithelial cells are radiosensitive cells that exposed by X-Ray radiaton of panoramic radiography. This study aimed at observing the effect of radiation exposure of panoramic radiography on the viability of human buccal epithelial cells using the Trypan Blue Exclusion Test.

The study was conducted in the Departement of Dentomaxillofacial Radiology of the Prof. Soedomo Dental Hospital, Faculty of Dentistry, Universitas Gadjah Mada with 10 research subjects (five men and five women). Samples of buccal epithelial cell prior were taken before the exposure and 30 minutes after the exposure to radiation of panoramic radiography. Buccal epithelial cells were then stained with trypan blue and put into hemocytometer in order to measure their cell viability using a light microscope.

Shapiro-Wilk test for normality indicated that the data of study results were normally distributed ($p > 0,05$). The results of Paired t -test indicated a significant difference ($p < 0.05$) in the viability of buccal epithelial cells before and 30 minutes after the exposure to radiation of panoramic radiography with a decrease of 2.83%. Therefore, it can be concluded that the exposure of panoramic radiography can effect on the viability of buccal epithelial cells measured using the Trypan Blue Exclusion test.

Keywords : *Panoramic radiography, cell viability, Trypan Blue Exclusion Test, buccal epithelial cells*