

ABSTRAK

Latar Belakang : Fiksasi merupakan merupakan proses penting yang sangat mempengaruhi gambaran sediaan histopatologi layak untuk dibaca. Ketika jaringan keluar dari tubuh, akan terjadi kematian sel/nekrosis. Nekrosis diawali dari proses *autolisis* yang menyebabkan disintegrasi sel sehingga terjadi perubahan inti sel dan sitoplasma. Perubahan inti sel akan menyebabkan penyusutan inti sel/piknosis. Fiksasi dilakukan sesegera mungkin untuk mempertahankan struktur dan unsur-unsur jaringan sama seperti masih hidup.

Tujuan : Mengetahui pengaruh penundaan fiksasi *Buffer Netral Formalin 10%* terhadap gambaran mikroskopis jaringan dengan pewarnaan *Haematoxylin Eosin*.

Metode : Penelitian ini adalah eksperimen menggunakan rancangan *one group pretest posttest*. Penelitian dilaksanakan pada bulan Oktober 2023 di Lab PA RSUD Sleman Yogyakarta. Sampel menggunakan organ ginjal tikus yang dibagi menjadi 5 bagian yaitu bagian langsung difiksasi (0 menit), ditunda 30 menit, 1 jam, 2 jam dan 4 jam. Sampel diproses menggunakan alat *Tissue Processing Leica TP 102*, mikrotom *Leica RM 2235* dan *automatic staining Leica DM 500*. Pembacaan mikroskopis dilakukan oleh dokter SpPA. Analisis data menggunakan uji *Kruskall Wallis*, kemudian dilanjutkan uji *posthoc Wilcoxon* untuk melihat signifikansi pengaruh penundaan antar variabel.

Hasil : Hasil penelitian didapatkan jaringan yang langsung difiksasi dan yang ditunda 30 menit menunjukkan gambaran mikroskopis yang baik. Perubahan gambaran mikroskopis terlihat pada penundaan 1 jam dimana sel membengkak dan intensitas warna kurang baik. Penundaan selama 2 jam dan 4 jam menunjukkan gambaran mikroskopis sel menyusut dan lisis. Hasil penelitian menunjukkan ada pengaruh penundaan fiksasi BNF 10% terhadap gambaran mikroskopis (p value=0,000). Uji *Posthoc Wilcoxon* menunjukkan adanya pengaruh penundaan fiksasi langsung dengan penundaan fiksasi selama 1 jam sebesar (p value=0,020), penundaan 2 jam sebesar (p value=0,000) dan penundaan 4 jam sebesar (p value=0,000).

Kesimpulan : Ada pengaruh signifikan penundaan fiksasi BNF 10% terhadap gambaran mikroskopis jaringan dengan pewarnaan *Haematoxylin Eosin*.

Kata Kunci : Fiksasi, BNF 10%, Penundaan, *Hematoxylin Eosin*.

ABSTRACT

Background : Fixation is a key process in histopathology that has a significant impact on the quality of subsequent processing. Upon leaving the body, tissues undergo necrosis due to cell death, which begins with autolysis and leads to the disintegration of cells, resulting in changes in the cell nucleus and cytoplasm. Nuclear shrinkage or pycnosis occurs as a result of changes in the cell nucleus. Fixation is done expeditiously to preserve the tissue's structure and components as if they were still living.

Objective : Determine the effect of 10% BNF fixation delay on microscopic images of tissue with Haematoxylin Eosin staining.

Method : This study is a pre-experiment using a one-group pretest-posttest approach. The study will be conducted in October 2023 at the PA Lab of RSUD Sleman Yogyakarta. The research sample comprises five distinct parts of the mouse kidney organ, namely the direct part fixed at 0 minutes, delayed by 30 minutes, 1 hour, 2 hours, and 4 hours. The samples will be processed using Leica TP 102 Tissue Processing tools, Leica RM 2235 microtomes, and Leica DM 500 automatic staining. Microscopic readings will be conducted by SpPA physicians. The data will be analyzed using the Kruskal-Wallis test, followed by Wilcoxon's post-hoc test to evaluate the significance of the delay between variables.

Results : The results of the study indicate that the quality of microscopic images obtained from tissue samples is significantly affected by the time delay in fixation. Direct fixation and a delay of 30 minutes produced good-quality images, whereas a delay of 1 hour resulted in cell swelling and poor color intensity. A delay of 2 hours and 4 hours led to further deterioration of the images, with cell shrinking and lysis becoming evident. The statistical analysis revealed a significant effect of 10% BNF fixation delay on microscopic images (p -value = 0.000). Wilcoxon's Posthoc Test showed that direct fixation delay had a significant effect, with delays of 1 hour, 2 hours, and 4 hours producing (p -values = 0.020), (p -value = 0.000), and (p -value = 0.000), respectively.

Conclusion : There is a significant effect of 10% BNF fixation delay on microscopic images of tissue with Haematoxylin Eosin staining.

Keywords : fixation, BNF 10%, delay, hematoxylin eosin.