

ABSTRAK

PENGARUH WAKTU SIMPAN SAMPEL DARAH LANSIA TERHADAP HASIL *CROSSMATCH* DI BANK DARAH RSUD BULELENG

Ida Ayu Putu Adinda Deviana Pratiwi¹, Ns. Ni Luh Gede Puspita Yanti, S.Kep.,
M.Biomed², Dr. Putu Gede Subhaktiyasa, S.T., MM³

^{1,2,3} Program Studi Teknologi Laboratorium Medis Program Sarjana Terapan
Sekolah Tinggi Ilmu Kesehatan Wira Medika Bali

Pemeriksaan *crossmatch* merupakan prosedur pra-transfusi yang bertujuan memastikan kompatibilitas antara darah donor dan resipien untuk mencegah reaksi transfusi. Penundaan pemeriksaan akibat keterbatasan stok darah menyebabkan sampel sering disimpan sebelum dilakukan *crossmatch*, sehingga berpotensi memengaruhi kualitas spesimen, terutama pada pasien lansia yang mengalami perubahan fisiologis dan lebih sering memiliki penyakit kronis. Penelitian ini bertujuan mengetahui pengaruh waktu simpan sampel darah lansia terhadap hasil pemeriksaan *crossmatch* di Bank Darah RSUD Buleleng. Penelitian menggunakan desain kuasi-eksperimental dengan pengukuran berulang (*repeated measures*). Sebanyak 35 sampel darah pasien lansia diperiksa pada waktu simpan 0 hari, 1 hari, dan 2 hari pada suhu 2–8°C menggunakan metode *Gel Card*. Analisis data dilakukan secara deskriptif dan menggunakan uji Kruskal–Wallis dengan tingkat signifikansi 95% ($\alpha = 0,05$). Hasil penelitian menunjukkan bahwa pada penyimpanan 0 hari dan 1 hari diperoleh hasil *compatible* sebanyak 29 sampel (82,9%) dan *incompatible* sebanyak 6 sampel (17,1%). Setelah penyimpanan 2 hari, hasil *compatible* menurun menjadi 26 sampel (74,3%), sedangkan hasil *incompatible* meningkat menjadi 9 sampel (25,7%). Namun, hasil uji Kruskal–Wallis menunjukkan tidak terdapat pengaruh yang bermakna antara waktu simpan terhadap hasil *crossmatch* ($p = 0,588$). Penelitian ini berkontribusi memberikan bukti bahwa penyimpanan sampel darah lansia pada suhu 2–8°C hingga dua hari masih dapat dipertimbangkan dalam pelayanan bank darah sesuai standar operasional prosedur, dengan tetap memperhatikan kondisi klinis dan penyakit penyerta pasien yang berpotensi meningkatkan reaktivitas *crossmatch*.

Kata Kunci: *crossmatch*, penyimpanan sampel darah, metode gel, kompatibilitas, transfusi darah.

ABSTRACT

THE EFFECT OF BLOOD SAMPLE STORAGE DURATION IN OLDER ADULT PATIENTS ON CROSSMATCH TEST RESULTS AT THE BLOOD BANK OF BULELENG REGIONAL GENERAL HOSPITAL

Ida Ayu Putu Adinda Deviana Pratiwi¹, Ns. Ni Luh Gede Puspita Yanti, S.Kep., M.Biomed², Dr. Putu Gede Subhaktiyasa, S.T., MM³

¹²³Applied Bachelor's Degree Program In Medical Laboratory Technology
Wira Medika Bali Collage of Health Sciences

Crossmatching is a pre-transfusion procedure performed to ensure compatibility between donor and recipient blood and to prevent transfusion reactions. Delays in crossmatch testing due to limited blood availability often require blood samples to be stored before testing, which may affect specimen quality, particularly in older adults who experience age-related physiological changes and commonly have chronic comorbidities. This study aimed to determine the effect of blood sample storage duration on crossmatch results in older adult patients at the Blood Bank of Buleleng Regional General Hospital. A quasi-experimental study with a repeated-measures design was conducted using 35 blood samples from older adult patients. Crossmatch examinations were performed immediately (day 0), after 1 day, and after 2 days of storage at 2–8°C using the Gel Card method. Data were analyzed descriptively and using the Kruskal–Wallis test with a 95% confidence level ($\alpha = 0.05$). The results showed that on day 0 and day 1, 29 samples (82.9%) were compatible and 6 samples (17.1%) were incompatible. After 2 days of storage, compatible results decreased to 26 samples (74.3%), while incompatible results increased to 9 samples (25.7%). However, the Kruskal–Wallis test indicated no statistically significant effect of storage duration on crossmatch results ($p = 0.588$). This study contributes evidence that storing blood samples from older adult patients at 2–8°C for up to two days can be considered acceptable for routine blood bank practice in accordance with standard operating procedures, while emphasizing the importance of considering patients' clinical conditions and comorbidities that may increase crossmatch reactivity.

Keywords: *crossmatch, blood sample storage, gel method, compatibility, blood transfusion.*