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PERBANDINGAN PROFIL SEL IMUN DARI *PERIPHERAL BLOOD MONONUCLEAR CELLS* (PBMC) PASIEN KANKER STADIUM LANJUT DENGAN RIWAYAT KEMOTERAPI DAN NON KEMOTERAPI YANG AKAN MENJALANI *IMMUNE CELL THERAPY* (ICT) DI KLINIK HAYANDRA TAHUN 2020 – 2023

RINCIAN HALAMAN (xviii + 82 halaman, 9 tabel, 4 gambar, 10 lampiran)

ABSTRAK

Tujuan
Penyakit kanker adalah kondisi di mana sel-sel abnormal membelah tanpa terkendali dan dapat menyebar ke seluruh tubuh, terutama pada stadium lanjut. Di Indonesia, kanker merupakan penyebab kematian signifikan, dengan 80% penderita terdiagnosis pada stadium lanjut, mengakibatkan beban sosial dan ekonomi yang besar. Meskipun kemoterapi menjadi salah satu tatalaksana kanker, efek sampingnya, seperti penghentian produksi leukosit oleh sumsum tulang sebagai sistem imun tubuh, dapat melemahkan respons antitumor. *Immune Cell Therapy* (ICT) sebagai terapi pendukung, menawarkan pembiakan menggunakan sel imun dari tubuh pasien untuk menarget dan menghancurkan sel kanker tanpa membahayakan sel normal. Meski demikian, masih kurangnya penelitian tentang penggunaan dan manfaat ICT, terutama untuk sel imun pasien kanker yang memiliki riwayat menjalani terapi utama, mendorong peneliti untuk menggali lebih lanjut di Klinik Hayandra, Jakarta. Penelitian ini bertujuan untuk mengetahui perbandingan profil sel imun dari *Peripheral Blood Mononuclear Cells* (PBMC) pasien kanker stadium lanjut dengan riwayat kemoterapi dan non kemoterapi yang akan menjalani ICT di Klinik Hayandra tahun 2020 – 2023.
Metode
Penelitian ini menggunakan metode analitik observasional dan desain *cross-sectional* dengan teknik *total sampling* pada 20 rekam medis yang memenuhi syarat kriteria restriksi penelitian. Analisis data penelitian ini menggunakan uji statistik *compare means independent-samples T test*.
Hasil
Hasil penelitian menunjukkan bahwa rata-rata persentase PBMC tertinggi ditemukan pada ekspresi CD3-/CD8- (7,41%) secara umum, CD3-/CD19- (7,50%) untuk kelompok dengan riwayat kemoterapi, dan CD3-/CD8- (7,38%) untuk kelompok non kemoterapi. Rata-rata ekspresi CD3+ murni dari keseluruhan PBMC pada kelompok riwayat kemoterapi sebesar 5,76% dan pada kelompok riwayat non

kemoterapi sebesar 6,37%. Hasil analisis uji statistik *compare means independent-samples T test* menunjukkan nilai p > 0,05.

Kesimpulan

Tidak terdapat perbedaan yang bermakna secara secara statistik antara profil sel imun PBMC pada kelompok pasien kanker stadium lanjut dengan riwayat kemoterapi dan non-kemoterapi yang akan menjalani ICT di Klinik Hayandra tahun 2020 – 2023. Namun, rata-rata persentase ekspresi CD3+ murni dari keseluruhan PBMC pada kelompok riwayat non kemoterapi lebih besar dibandingkan kelompok riwayat kemoterapi.

Daftar Pustaka **:** 57 (2013-2023)

Kata Kunci **:** *Peripheral Blood Mononuclear Cells* (PBMC), kanker stadium lanjut, kemoterapi, *Immune Cell Therapy* (ICT), *Cluster of Differentiation* (CD)

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COMPARISON OF IMMUNE CELL PROFILES IN PERIPHERAL BLOOD MONONUCLEAR CELLS (PBMC) OF ADVANCED CANCER PATIENTS WITH A HISTORY OF CHEMOTHERAPY AND NON-CHEMOTHERAPY WHO WILL UNDERGO IMMUNE CELL THERAPY (ICT) AT THE HAYANDRA CLINIC IN 2020 – 2023.

PAGE DETAIL (xviii + 82 pages, 9 tables, 4 pictures, 10 appendices)

ABSTRACT

Objective
Cancer is a condition where abnormal cells divide uncontrollably, potentially spreading throughout the body, particularly in advanced stages. In Indonesia, cancer is a significant cause of death, with 80% of individuals being diagnosed at an advanced stage, leading to a considerable social and economic burden. Despite chemotherapy being one of the cancer treatments, its side effects, such as halting the production of leukocytes by the bone marrow as the body's immune system, can undermine the antitumor response. As a supporting therapy, Immune Cell Therapy (ICT) employs culturing techniques using immune cells from the patient's body to selectively target and eliminate cancer cells without causing harm to normal cells. However, there is still a lack of research on the use and benefits of ICT, particularly concerning immune cells in cancer patients with a history of primary therapy, prompting further investigation at the Hayandra Clinic in Jakarta. This study aims to compare the immune cell profiles of Peripheral Blood Mononuclear Cells (PBMC) in advanced cancer patients with a history of chemotherapy and non-chemotherapy, who will undergo ICT at the Hayandra Clinic between 2020 to 2023.
Method
This study employed observational analytical methods and a cross-sectional design, employing a total sampling technique consisting of 20 medical records meeting the research's restriction criteria. The research data were analyzed using the independent-sample T-test for comparing means.
Result
The results revealed that the highest average percentage of Peripheral Blood Mononuclear Cells (PBMC) was identified in the CD3-/CD8- expression (7.41%) overall, CD3-/CD19- (7.50%) for the group with a history of chemotherapy, and CD3-/CD8- (7.38%) for the non-chemotherapy group. The average pure CD3+ expression from all PBMCs in the chemotherapy history group was 5.76%, while in the non-chemotherapy history group, it was 6.37%. The results of the statistical test analysis, specifically the independent-sample T-test, indicated a p-value > 0.05.

Conclusion
There was no statistically significant difference in the PBMC immune cell profile between the group of advanced cancer patients with a history of chemotherapy and the non-chemotherapy group who will undergo Immune Cell Therapy (ICT) at the Hayandra Clinic from 2020 to 2023. Nevertheless, the average percentage of pure CD3+ expression from all PBMCs in the non-chemotherapy history group exceeded that of the chemotherapy history group.

Reference **:** 57 (2013-2023)
Keywords **:** *Peripheral Blood Mononuclear Cells (PBMC), advanced cancer, chemotherapy, Immune Cell Therapy (ICT), Cluster of Differentiation (CD)*