Ekspresi protein programmed cell death ligand-1 (PD-L1) dan programmed cell death-1 (PD-1) pada diffuse large B-cell lymphoma (DLBCL) subtipe germinal center B-cell-like (GCB) dan non-germinal center B-cell-like (non-GCB) = Expression of programmed cell death ligand-1 (PD-L1) and programmed cell death-1 (PD-1) protein in germinal center B-cell-like (GCB) dan non-germinal center B-cell-like (non-GCB) subtypes of diffuse large B-cell lymphoma (DLBCL)

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Abstrak

Background: Diffuse large B-cell lymphoma (DLBCL) merupakan keganasan limfoid yang paling sering terjadi di dunia. DLBCL memiliki 2 subtipe yaitu germinal center B- cell-like (GCB) dan non-GCB. Programmed cell death-1 (PD-1) merupakan protein transmembran tipe 1 dari anggota imunoglobulin B7/CD28 sebagai reseptor imunomodulator yang memiliki peranan penting mencegah terjadinya kelainan autoimun. PD-1 di ekspresikan pada sel T, sel B dan sel natural killer. PD-1 memiliki ligan yaitu programmed cell death ligand-1 (PD-L1). PD-L1 banyak diekspresikan di beberapa jenis sel tumor dan di lingkungan mikro tumor. Salah satu karakteristik dari sel kanker adalah mampu menghindari destruksi dari sistem imun dengan cara mengaktivasi jalur PD-1/PD-L1. Peningkatan ekspresi PD-L1 memiliki asosiasi dengan prognosis yang buruk sedangkan peningkatan ekspresi PD-1 memiliki asosiasi dengan prognosis yang baik. Ekspresi PD-1 dan PD-L1 sudah diteliti pada kanker paru, namun jarang diteliti pada pasien DLBCL. Pada penelitian ini akan dievaluasi perbedaan antara ekspresi PD-1 dan PD-L1 pada pasien DLBCL subtipe GCB dan non-GCB. Metode: 20 kasus DLBCL subtipe GCB dan 20 kasus DLBCL subtipe non-GCB dalam sedian blok parafin (formalin-fixed paraffin-embedded tissue) dari Departemen Patologi Anatomik RSCM-FKUI pada periode tahun 2014 hingga 2017. Ekspresi PD-L1 dan PD-1 dievaluasi dengan teknik imunohistokimia. Ekspresi PD-L1 dievaluasi pada sel tumor, sedangkan ekspresi PD-1 dievaluasi di limfosit. Hasil: Terdapat perbedaan bermakna ekspresi PD-L1 pada sel tumor pasien DLBCL subtipe GCB dan non-GCB ($P < 0,05$), sedangkan ekspresi PD-1 tidak di diekspresikan pada limfosit pasien DLBCL subtipe GCB dan non-GCB. Kesimpulan: Terdapat peningkatan bermakna ekspresi protein PD-L1 yang diekspresikan pada sel tumor pasien DLBCL subtipe non-GCB dibandingkan subtipe GCB. Tidak terdapat ekspresi PD-1 pada limfosit pasien DLBCL subtipe GCB dan non-GCB.
.....Background: Diffuse large B-cell lymphoma (DLBCL) is one of the most common lymphoid malignancies in the world and has two major molecular subtypes, germinal center B-cell-like (GCB) and non-GCB. Program cell death-1 (PD-1) is a type 1 transmembrane protein from members of immunoglobulin B7/CD28 as immunomodulator receptor that has an important role in preventing autoimmune disorder. PD-1 is expressed in T cells, B cells and natural killer cells. Program cell death ligand-1(PD-L1) is ligand of PD-1. PD-L1 is expressed in several types of tumor cells and in tumor microenvironment. One of cancer cells characteristic is the ability to avoid destruction of the immune system by activating PD-1 /PD-L1 pathway. Increased of PD-L1 expression is associated with poor prognosis while increased of PD-1 expression is associated with good prognosis. Expressions of PD-1 and PD-L1 have been studied in lung cancer, but study in DLBCL patients is limited. In this research, we

evaluated the difference between PD-1 and PD-L1 expression in GCB and non-GCB subtypes of DLBCL. Methods: 20 cases of GCB subtype of DLBCL and 20 cases of non-GCB subtype of DLBCL in formalin-fixed paraffin-embedded tissue (FFPE) were taken from the archive of the Anatomical Pathology Department of RSCM-FKUI during 2014 to 2017. The expression of PD-L1 and PD-1 were evaluated by immunohistochemical technique. Expression of PD-L1 was evaluated in tumor cells, whereas PD-1 expression was evaluated in lymphocyte. Result: There was significant differences between PD-L1 expression in tumor cells of GCB subtype of DLBCL as compared to non-GCB subtype ($P < 0.05$). The expression of PD-1 was not found in lymphocytes of GCB and non-GCB subtypes of DLBCL. Conclusion: The expression of PD-L1 in tumor cells of non-GCB subtype of DLBCL increased significantly as compared to GCB subtype. The expression of PD-1 protein was not found in lymphocyte cell of GCB as well as non-GCB subtypes of DLBCL.