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722.ALLOGENEIC TRANSPLANTATION: ACUTE AND CHRONIC GVHD, IMMUNE RECONSTITUTION

Oligoclonal Bands in CSF May be Associated with Chronic Graft Versus Host Disease after Haploidentical Hematopoietic Stem Cell Transplantation

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Introduction

Haploidentical hematopoietic stem cell transplantation (haplo-HSCT) is a straightforward and effective therapy for hematology patients, and chronic graft-versus-host disease (cGVHD) is recognized as a major and important complication of haplo-HSCT. cGVHD can affect a number of organs, such as the skin, eyes, oral mucosa, liver, and lung.In addition to classical manifestations, cGVHD can imitate almost any autoimmune disease, and its central nervous system (CNS) involvement is exceedingly rare. In our studies, IgG synthesis and anti-myelin oligodendrocyte glycoprotein antibody were risk factors for CNS demyelination (*Annals of Hematology, 2018*), aGVHD and hypertension were associated with posterior reversible encephalopathy syndrome (*Bone Marrow Transplantation, 2020*), and aGVHD and cGVHD were identified as factors for idiopathic inflammatory demyelinating disease (*Am J Hematol, 2021*). However, there are limited data available on cGVHD in the CNS. Therefore, we performed a thorough assessment of cGVHD, including examining the CSF of patients with cGVHD.

Methods

We performed a retrospective nested case–control study in patients receiving haplo-HSCT between January 2013 and June 2022 in our center. In total, 86 patients suffering from cGVHD who also received CSF examinations were analyzed, of whom 42 patients showed evidence of CNS-cGVHD. Written informed consent was, and ethical approval was obtained before sample collection by the Ethics Committee of Peking University People's Hospital. The CSF samples were collected by lumbar puncture (LP). At least 1 ml of CSF was obtained from all patients by nontraumatic LP. All CSF samples were routinely screened for infection with bacterial, fungal, and virological pathogens, examined by histopathology and analyzed by fluorescence-activated cell sorting to identify tumor cells. Immune biomarkers were also evaluated.

Results

The median time from transplantation to cGVHD was 236 days. In the 86 cGVHD patients, aGVHD (HR 0.431, 95% CI 0.229-0.812, P=0.009), CSF protein (HR 0.634, 95% CI 0.484-0.784, P=0.)and oligoclonal bands (OCB) (HR 0.527, 95% CI 0.312-0.890, P=0.017) were identified as risk factors for the onset of cGVHD after haplo-HSCT. Moreover, we combined the variables to establish a nomogram for the cumulative incidence of cGVHD. The test showed that the fitness of the multivariate logistic regression model was suitable (P = 0.9516). The area under the ROC curve was 0.741. There were no differences in overall survival (OS), disease-free survival (DFS), or the cumulative incidence of relapse (CIR) between the cGVHD group and the control group without cGVHD. Nonetheless, there was a significant difference in nonrelapse mortality (NRM) (P=0.009). The

2-year cumulative NRM was 48.2% (95% CI 45.8%-50.6%) versus 12.6% (95% CI 12.2%-13.0%) between the cGVHD and without cGVHD groups, respectively. Then, we performed multivariate analysis for data from 42 patients who were diagnosed with CNS-cGVHD. The underlying diseases (HR 1.334, 95% CI 1.027-1.733, P=0.030) and CSF proteins (HR 0.313, 95% CI 0.126-0.776, P=0.012) were independently associated with the occurrence of CNS-cGVHD.

Conclusions

In conclusion, CSF immunity may be associated with the onset of cGVHD after haplo-HSCT, especially OCB, and the identification of cGVHD increases NRM after haplo-HSCT. Further multicenter prospective studies are needed to confirm the results and establish the standard diagnostic criteria and therapy for CNS-cGVHD.

Disclosures No relevant conflicts of interest to declare.

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