Effect of age on the immune system and pathology of mice with chronic graft-versus-host disease lupus nephritis

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ABSTRACT. We investigated the effect of age on the expression of immune molecules [ANA, C4, double stranded DNA (dsDNA), CD16/32, CD19, CD3, and CD64], urine protein, and pathology in mice with chronic graft-versus-host disease (cGVHD) lupus nephritis (LN), and their relationship with reactivity index score. Mouse models of cGVHD LN were established, and mice were randomly divided into four aged-based groups of nine mice each. Serum levels of ANA, C4, and dsDNA were determined, the urine protein levels were assessed, and expression levels of CD16/32, CD19, CD3, and CD64 were measured. Expression levels of CD16/32+CD19(T1), CD16/CD32+CD3(T2), and CD64+CD3 or CD19(T3) were defined in the thymus, in bone marrow they were defined as CD16/32+CD19(B1), CD16/32+CD3(B2), CD64+CD3 or CD19(B3), and in spleen they were defined as CD16/32+CD19(P1), CD16/32+CD3(P2), CD64+CD3 or CD19(P3), respectively. There were significant differences in the levels of dsDNA and urine protein among the four groups (P < 0.05), which were negatively correlated with age. B1, B2, S1, and S2 were significantly...
different among the four groups (P < 0.05), with a positive correlation with age for B1 and B2. There was no correlation of expression of ANA, C4, dsDNA, T1-T3, B1-B3, S2-S3 with reactivity index score; S1 was the exception (r = -0.440, P = 0.011). Age influenced levels of dsDNA and urine protein in the mouse cGVHD model of LN. S1 was associated with reactivity index score and might also affect pathological changes.

**Key words:** Lupus nephritis; Immunology; Reactivity index score; Pathology