Fas/FasL in the immune pathogenesis of severe aplastic anemia


Department of Hematology, General Hospital, Tianjin Medical University, Tianjin, China

Corresponding author: Z.H. Shao
E-mail: shaozonghong_l@yeah.net

Received March 5, 2013
Accepted October 25, 2013
Published May 30, 2014
DOI http://dx.doi.org/10.4238/2014.May.30.3

ABSTRACT. Fas/FasL protein expression of bone marrow hematopoietic cells was investigated in severe aplastic anemia (SAA) patients. Fas expression was evaluated in CD34⁺, GlycoA⁺, CD33⁺, and CD14⁺ cells labeled with monoclonal antibodies in newly diagnosed and remission SAA patients along with normal controls. FasL expression was evaluated in CD8⁺ cells in the same manner. In CD34⁺ cells, Fas expression was significantly higher in the newly diagnosed SAA group (46.59 ± 27.60%) than the remission (6.12 ± 3.35%; P < 0.01) and control (8.89 ± 7.28%; P < 0.01) groups. In CD14⁺, CD33⁺, and GlycoA⁺ cells, Fas levels were significantly lower in the newly diagnosed SAA group (29.29 ± 9.23, 46.88 ± 14.30, and 15.15 ± 9.26%, respectively) than in the remission (47.23 ± 31.56, 67.22 ± 34.68, and 43.56 ± 26.85%, respectively; P < 0.01) and control (51.25 ± 38.36, 72.06 ± 39.88, 50.38 ± 39.88%, respectively; P < 0.05) groups. In CD34⁺ cells, Fas expression was significantly higher in the newly diagnosed SAA group (46.59 ± 27.60%) than the remission (6.12 ± 3.35%; P < 0.01) and control (8.89 ± 7.28%; P < 0.01) groups. FasL expression of CD8⁺ cells was significantly higher in the newly diagnosed SAA group (89.53 ± 45.68%) than the remission (56.39 ± 27.94%; P < 0.01) and control (48.63 ± 27.38%; P < 0.01) groups. No significant differences were observed between the remission and control.
groups. FasL expression in CD8+ T cells was significantly higher in newly diagnosed patients, and CD34+, CD33+, CD14+, and GlycoA+ cells all showed Fas antigen expression. The Fas/FasL pathway might play an important role in excessive hematopoietic cell apoptosis in SAA bone marrow. Furthermore, CD34+ cells are likely the main targets of SAA immune injury.

**Key words:** Severe aplastic anemia; Fas/FasL; Apoptosis