

Individual management of the immunosuppressants in liver transplantation recipients by using a novel immune score system

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A innovative method to quantify the immunity by MISS score was used to evaluate the immune status of liver transplant recipients, and by which to manage the immunosuppressants. Data from healthy controls in addition to liver transplant recipients, who underwent a single liver transplant were followed up at Beijing Chaoyang Hospital, were retrospectively collected and analyzed between January 2017 and June 2020. Furthermore, peripheral blood was taken for flow cytometric measurement.

Total of 376 healthy controls with 376 tests and 148 liver transplant recipients with 284 tests were included in this study. Evaluated by Mingdao immune cells analysis(MICA) and Mingdao immune score system(MISS), the mean values of healthy controls were near zero inspite of different age groups and gender, in contrast, most of liver transplant recipients after liver transplantation were negative values.

The preoperative scores were used to decide the first dose of the immunosuppressants as patients with lower scores (≤ -5) were suggested to give a lower dose of immunosuppressants in an attempt to prevent the over immunosuppression in the early phase. Moreover, we found that positive scores or increased scores (≥ 5) could reflect immune activation, which normally indicate the acute rejection will occur after 2-3days. Finally, the score was defined to be the only significant independent risk factor for clinical acute rejection (odds ratio, 0.913; confidence interval, 0.845-0.987; $P = 0.021$).

By using MISS score method, we could decrease the rate of acute rejection from 27.1% to 15.5%, and the rate of opportunity infection from 9% to 2.4%. In conclusion, the innovative method MISS score could be used as an indicator to reflect recipients immune state and to regulate the immunosuppressants perioperation.