

Mycophenolic acid exposure in liver transplant recipients

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Background: Mycophenolate mofetil is an immunosuppressant drug used in liver transplant recipients to prevent rejection. The recommended target AUC_{0-12h} of its active moiety, mycophenolic acid (MPA), is 30–60 mg.h/L. The Immunosuppressant Bayesian Dose Adjustment (ISBA) website serves as an online expert system estimating this AUC from 3 concentrations and a few clinical information. The aim of this study was to describe MPA exposure in liver transplant recipients and the impact of dose adjustment based on MPA AUC in this population.

Methods: The following data were retrospectively collected from the ISBA website between October 2005 and May 2020: dose, AUC estimation, dose recommendation. The statistical analyses were performed with the R software version 4.0.3 based on: Fisher's exact test for discrete variables, Mann-Whitney tests for continuous variables. The results were considered significant for a p value < 0.05.

Results: A total of 3632 AUC estimations were collected from 1872 patients, 655 of whom had 2 requests or more. The median AUC_{0-12h} [IQR] during the first-year post-transplantation was 27 h.mg/L [16–39] (n = 422), and it was significantly higher when the recommended dose was followed: 38 h.mg/L [30–49] (n = 205, p < 0.001). Overall, 40% of the AUC_{0-12h} were in the target, and this proportion increased significantly to 61% when the recommended dose was followed (+21%, p < 0.001).

Conclusions: Almost half of the patients had low mycophenolic acid AUC_{0-12h} at the first request, especially during the first-year post-transplantation. Following the ISBA recommendations enables to increase significantly the proportion of patients in the target.

Key Words: liver transplantation, mycophenolate mofetil, therapeutic drug monitoring, AUC