Poster

[P25-8] P25-8: Immunosuppressive drugs (3): Biomarkers and pharmacokinetics

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[P25-8-2] Monitoring plasmatic miRNA-155-5p expression as biomarker of prognosis of acute rejection in liver transplant recipients

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BackgroundMicroRNAs (miRs) have been reported to play a role in immune system response. The results of several clinical trials have suggested that these molecules might be used as biomarkers for the diagnosis of the risk of rejection. Our aim was to evaluate the clinical utility of monitoring plasmatic miRs expression as early prognostic and/or diagnostic biomarker of acute rejection (AR) in liver transplant recipients.

Methods

87 de novo liver transplant recipients were included from H. Clinic of Barcelona. All patients were treated with tacrolimus (TAC), mycophenolate mofetil, and methylprednisolone. Plasmatic miRs (miRNA-155-5p, miRNA-122-5p and miRNA-181a) expression was evaluated by quantitative RT-PCR pre-transplantation, 1st week, 1st and 3rd month after transplantation.TAC trough concentrations were measured by liquid chromatography/tandem mass spectrometry and mycophenolic acid trough concentrations by high-performance liquid chromatography with ultraviolet detector.

Results

Fifteen liver recipients experienced biopsy-proven AR (17%) (three during the 1st week, two before the end of the 1st month and ten at 3rd month post transplantation). No significant differences were observed in drug exposure between rejectors and non-rejectors patients. Pre-transplantation miRNA expression was similar between both groups, however, after transplantation, rejectors patients showed a significant increase of the plasmatic miRNA-155-5p and miRNA-122-3p expression before and during AR. miR-181a expression only was significant increased in those patients who rejected during the 1st week. Based on ROC curves, analysis of plasmatic miRNA-155-5p presents the best discriminatory capacity between rejectors and non-rejectors AUC=0.805 (P=0.05; 95%CI:0.704-0.905;cut-off=0.22 sensitivity=71%,specificity= 81%).

Conclusions

In summary, monitoring the expression of miRNA-155-5p in liver recipients has the potential to act as early prognostic biomarker of AR risk and provides better personalize immunosuppression adjustment. Prospective data from multicenter clinical trials are required to better qualify the clinical utility of this biomarker.