

Mohamed Hani Oweira

Dr. med.

**“Prediction severity of hepatic dysfunction in cirrhosis and post transplant mortality in liver transplant recipients based on serum amino acid levels”**

Department of surgery

Prof. Dr. med. Jan Schmidt

The Model for End-Stage Liver Disease (MELD) score is a well-established tool to assess the degree of the severity of liver disease and is widely used for the organ allocation in liver transplantation. The role of the MELD score to predict survival after LT, which has been considered a matter of vital importance to the issue of liver transplantation, remains controversial.

Branched Chain Amino Acids (BCAAs) are a group of essential amino acids comprising valine, leucine, and isoleucine. A low ratio of serum BCAAs to amino acid adducts (AAAs) is a physiological hallmark of liver cirrhosis. Amino acids have direct or indirect inflammatory, anti-inflammatory or immunomodulatory effects. The association of phenylalanine and tryptophan metabolites with activated cytomegalovirus infection in kidney transplant recipients and pre-transplant serum kynurenine as predictor of acute rejection in kidney transplant recipients have been reported. Quinolinic acid (QuinA) is a tryptophan metabolite produced by activated macrophages and other immune stimulation.

We investigated whether the degree of systemic inflammation as measured by QuinA and other parameters correlate with clinical liver dysfunction according to MELD scoring system and the one year mortality rate after liver transplantation.

Our data indicate that serum levels of QuinA reflect the degree of liver dysfunction. Moreover, high levels of QuinA may serve as a sensitive indicator of hepatic encephalopathy and we have shown that measurement of pre-transplant plasma levels of phenylalanine and metabolites of tryptophan are significantly sensitive and specific parameters with very high NPV for prediction of post-transplant mortality in liver transplant recipients.