

11th ESOT Congress 2003 & 13th ETCO Congress 2003

Filename: 851205

Presenting/Contact Author: J M Fertmann

Department/Institution: Division of Transplant Surgery, Klinikum Grosshadern der LMU

Address: Station HS, Marchioninstr. 15

City/State/Zip/Country: Muenchen, 81377, Germany

Phone: +49-89-7095 2650 **Fax:** +49-89-7095 5655 **E-mail:** jan.fertmann@gch.med.uni-muenchen.de

Society Submitting To: ESOT

Abstract Category: 2.13 Tissue injury/preservation

Presentation format: Either oral or poster presentation

Eligible for Young Researchers award: Yes

Title:

Measurement of regional perfusion and oxygen saturation during human simultaneous pancreas-kidney transplantation - correlation with intravital microscopy

J M Fertmann¹, H Arbogast¹, E Sajzewa¹, A Tarabichi¹, W D Liner¹, W Land¹ and J N Hoffmann.

¹ Division of Transplant Surgery, Klinikum Grosshadern, Ludwig-Maximilians-University, Munich, Germany .

Body: Purpose: In the current study we evaluated the combined use of Near-infrared Laser-Doppler flowmetry (NILDF) and Remission Spectroscopy (RS) for measurement of regional perfusion and oxygen saturation (Oxygen2see, Lea Medizintechnik, Germany) of the reperfused kidney and pancreas during simultaneous pancreas-kidney transplantation.

Method: A flat probe for combined measurements of NILDF and RS was placed above the transplanted organs after reperfusion at 2 min., 5 min., 10 min., 15 min., and 30 min.. Simultaneously, flow-coded ultrasound was performed. Intravital microscopy (Cytoscan, Cytometrics, USA) was selectively used.

Results: Transplanted organs showed a distinct pattern of reperfusion that was mainly due to specific organ architecture (high flow organ/ low flow organ). Significant differences in local organ perfusion occurred that could be attributed mainly to differences in the duration of ischemia, changes in macrohemodynamics (mainly during pancreatic reperfusion), and use of protective agents. Linear regression analysis showed a significant correlation ($p < 0.001$) for changes in regional perfusion during reperfusion, as measured with Oxygen2see and flow-coded ultrasound. Intravital microscopy was shown to be technically difficult on kidney surfaces, since it has to be combined with local decapsulation in kidneys and subsequent bleeding.

Conclusion: The combined use of NILDF and RS allows continuous and non-invasive monitoring of organ reperfusion and oxygen metabolism during allogeneic simultaneous pancreas-kidney transplantation, and may be a tool to estimate I/R-injury in vivo.