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# Human fetal liver progenitor cell transplantation: A potential bridging therapy to liver transplantation in patients with end-stage liver disease

**Giada Pietrosi**
ISMETT, University of Pittsburgh Medical Center, Italy

ThLiver transplantation is currently the only therapeutic option for patients with end stage liver disease, but its applicability is limited because of the widening gap between the number of transplant candidates and available organs. Therefore, the development of new and successful treatments for liver failure could have a significant clinical and social impact. Over the last few years, ISMETT, in collaboration with University of Pittsburgh, has developed an efficient protocol of human fetal liver cell isolation, from the late second trimester, based on a 5-step vascular perfusion method. This method guarantees high cell viabilities and reduces the exposure of the tissue to collagenase 4-fold. It was observed that fetal hepatocytes obtained from livers of different gestational age perform liver-specific functions (albumin secretion, urea synthesis and G6Pase activity) at levels comparable to thoseof their adult counterparts, and cryopreservation had only a minor impact on fetalliver cell viability and function. The mean percentage of viability of thawed cells stored up to 1 year in liquid nitrogen was approximately 70%, and the attachment efficiency, as well as the tested hepatic functions, was not impaired. We also moved to clinical application by performing a phase I-II clinical study on intra splenic infusion of non-sorted, fresh, fetal liver cells in a small group of patients with end stage liver disease. The procedure was found to be a safe bridging therapy to liver transplantation, and a preliminary positive effect on clinical scores and on encephalopathy also emerged from this study.

## Biography

Giada Pietrosi graduated in Medicine and Surgery in 1998 from the University of Palermo, Italy, where she went on to do her residency in Gastroenterology. In 2001, she moved to the Liver Transplant and Hepatobiliary Unit at Addenbrooke's NHS Hospital, in Cambridge, England, where she became Specialist Registrar and Research Fellow at the Hutchison-MRC Medical Research Cancer Centre. In 2006, she was appointed as an Attending Hepatologist at ISMETT, and began to be involved in the field of regenerative medicine, and in the development of the clinical program of fetal liver progenitor cell transplantation in end-stage liver disease. Since 2013, she has been Clinical Assistant Professor of Medicine in the School of Medicine, Department of Medicine, University of Pittsburgh. She has published more than 25 papers in peer reviewed journals, and her clinical activity has always been coupled with highly focused research aimed at developing alternative therapeutic strategies for treating patients with chronic liver disease or acute liver decompensation.

gpietrosi@ismett.edu