Deniz Balci: ILTS Prague Commentary

May 2017

State of the Art

Liver inflammation and immunology: From basic science to liver transplantation

Frank Tacke

- Dr Tacke, started with defining new concepts and roles of monocytes and macrophages which could be summarized as: impact homeostasis and inflammation, hepatocyte injury, hepatic stellate cell activation and angiogenesis.
- In liver, macrophage heterogeneity results with difficult immunological functions in disease progression as well as regression.
- Targeting macrophages could be via different methods namely microbubble, liposome or polymer in decreasing order of size of their respective particules.
- A proof-of-concept paper was published by Bartnect et al, showed decreased liver fibrosis using dexamethasone loaded liposomes. (Bartneck M, Warzecha KT, Tacke F. Therapeutic targeting of liver inflammation and fibrosis by nanomedicine. *Hepatobiliary Surgery and Nutrition*. 2014;3(6):364-376. doi:10.3978/j.issn.2304-3881.2014.11.02.)
- In another model of therapeutic targeting of monocytes in liver disease; LY6C high inflamatory macrophage becomes a fibrogenic macrophage that results with Hepatic stellate cell activation and extracellular matrix increase, while Ly6C low macrophage induces activated hepatic stellate cell apoptosis which may have a potential in reversal of fibrosis, showing potential benefit of therapeutic targeting of LY6C.
- The other cell line with various functions are Kupffer cells. Kupffer cell-mediated immunological tolerance to particulate antigens is abrogated in liver injury and fibrosis. They may assist in restoring antimicrobial surveillance in the early period after LT and promote tolerogenic actions in the long term.
- In liver transplantation, **donor** Kupffer cells may block activation **before** I/R injury occurs.
- Macrophages also take part in resolution of ischemia reperfusion injury in mice and man. There are various clinical implications.
- Monocyte-derived macrophages of the **recipient** are helpful in blocking infiltration **after** I/R injury
- After the transplantation, they could potentially be blocked to prevent graft fibrosis hence prevent disease recurrence.
- And, they may also counterbalance over-immunosuppression which may be helpful for HCC recurrence.
- Dr. Tacke concluded that, targeting monocyte/ macrophages can be therapeutic in liver diseases (e.g. CCR2/5 inhibitor in Nash fibrosis) which could be an interesting approach to novel interventions not only in chronic liver disease but also during and after liver transplantation.

Concurrent Oral Video Abstract Session:

Chairs: O Martin, KS Suh

O-138 - Living Donor Liver Transplantation Using a Right Anterior Section of the Liver

Kyung-Suk Suh, Seoul, Republic of Korea

Dr Suh described a novel donor hepatectomy technique using **right anterior section** for the graft in LDLT for a recipient of 49-year-old male with BMI of 25. Donor volumetry was 0.57 for both the right posterior section and left hemiliver which were insufficient. The right anterior section was 710 ml with GRWR 0.96, with favorable portal and arterial anatomy hence selected as the graft.
The total operation time was 292 minutes without transfusion and intra-operative complications. The middle hepatic vein of the right anterior section graft was anastomosed to the recipient's right hepatic vein and the rest were in standard fashion.
Dr. Suh concluded that despite being a complex donor operation with 2 parenchymal transection lines, this novel concept may expand the cadaveric donor pool and indication of LDLT.

O-139 - A New Technique for Living Donor Liver Transplantation: Backtable Outflow Reconstruction and Bicaval Anastomosis with Veno-venous Bypass: Back to Basics

Deniz Balci, Ankara, Turkey

Dr Balci reported a new LDLT technique which simplifies outflow reconstruction and, at the same time aiming to increase safety for the recipient considered to be sensitive to hemodynamic instability due to systemic comorbidities.
The operation was divided into 3 steps: Hepatectomy without caval preservation and simultaneous veno-venous bypass (VVB) was set up using percutaneous femoral, internal jugular vein and portal vein cannulation. Back-table harvest of the recipient IVC from the diseased liver and new living donor graft outflow reconstruction. Finally, bi-caval anastomosis in the recipient before withdrawing VVB.
Dr Balci concluded that the technique may enable to simplify complex hepatic vein and caval anastomoses in LDLT using the VVB system under safe and hemodynamically stable conditions.

O-140 - Pure Laparoscopic Living Donor Right Hepatectomy for Adult Liver Transplantation (4K, UHD)

Ki-Hun Kim, Seoul, Republic of Korea

Dr Kim presented a case of totally laparoscopic living donor right Hepatectomy. The donor was a 27 y.o woman with total liver volume of 1100 cm^3 and right lobe was 630 cm^3. Graft to recipient weight ratio was 0.82. The operation started with right hepatic artery and portal vein dissection. Parenchymal transection was completed using intermittent Pringle maneuver. The MHV was identified with intraoperative USG and tributaries from segments V and VIII were identified and divided. Finally, right bile duct was found and divided after performing intraoperative cholangiography with a mobile C-arm. The operation time was 300mins, and the estimated blood loss was less than 125ml. Graft weights were 610g Perioperative period was uneventful.
Dr. Kim suggested that the laparoscopic donor right hepatectomy is safe and feasible for liver transplantation, but should be performed in selected cases with a favorable anatomy in experienced centers .

O-142 - Pure Right Lobe Donor Hepatectomy Using 3-D Laparoscopy for Adult-to-Adult Living Donor Liver Transplantation
Hye Ryeon Choi, Daegu, Republic of Korea

O-143 - Laparoscopic-assisted Living Donor Right Hepatectomy Adel Bozorgzadeh, Worcester, United States

Two more presentations were also reporting on a case of Laparoscopic Right Hepatectomy, Dr Choi from S.Korea presented pure laparoscopic right graft harvest using a Three-dimensional(3-D) imaging which they claim to enhance depth perception and facilitate operation. In Another presentation from the US by Dr Bozorgzadeh's group, Hand-assisted laparoscopic right graft harvest technique was shown using a hand gelport placed on the right subcostal incision and three laparoscopic ports. The estimated blood loss was 500ml. The early postoperative course was uneventful for both the donor and recipient and they were discharged after 7 and 12 days, respectively. The authors concluded that hand-assisted laparoscopic living donor right hepatectomy is reproducible and can be safely performed.

O-144 - Introduction of extrahepatic Glissonean approach for living donor hepatectomy
Taizo Hibi, Tokyo, Japan

Dr Hibi presented their extrahepatic Glissonean approach for living donor hepatectomy. The rational was to decrease bile duct injuries after living donor hepatectomy by both preserving blood supply of the hilar plate in the remnant liver by minimizing dissection and obtaining maximum margin of hilar structures for bile duct division. They defined 3 steps, Step 1. Isolation of the The right or the left Glissonean pedicle with an umbilical tape Step 2. Identification of hilar structures using Intraoperative cholangiography to find the point of bile duct division. Step 3 was Parenchymal division with modified liver hanging maneuver followed by division of hilar structures and graft retrieval. Dr Hibi concluded that extrahepatic Glissonean approach for living donor hepatectomy is safe and rational.

O-145 - Laparoscopic Approach for Living Donor to Paediatric Liver Transplant
Javier Briceño, Cordoba, Spain

Dr Briceno reported their experience with 5 consecutive purely laparoscopic left lateral sectionectomy for adult-to-paediatric living liver donation, concluding that in specialized units, minimally invasive approach to living donor can be safely performed.