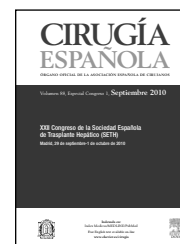


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Evolution of liver transplantations in Europe

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From May 1968 to December 2007 the ELTR has cumulated data on 79044 grafts transplanted in 70966 patients at 138 centers from 25 countries. Analysis of this data gives a comprehensive overview of the evolution of liver transplantation (LT) in Europe over this time period.

Overall evolution of indications and survival

The annual number of LT has gradually increased reaching more than 5000 LT/yr. One year (yr) patient survival has continually improved, most recently reaching 87 %. Five-yr survival is currently 71 % for patients and 63 % for grafts. Twenty-six percent of post-LT mortality occurred within 1 month and 48 % within 6 months of LT. Cirrhosis was the most frequent indication (58 %) followed by cancer (13 %), cholestatic diseases (11 %), and acute hepatic failure (9 %). Patient survivals at 5 yrs were 72 % for cirrhosis, 63 % for acute hepatic failure and 57 % for cancer ($p < 0.001$). In cirrhotic patients, 5-yr survival was better for primary biliary cirrhosis (79 %) than for alcoholic (74 %) or virus-related cirrhosis (71 %) ($p < 0.001$). In patients transplanted for viral cirrhosis, survival with Hep B was better than with Hep C (74 % vs 66 % at 5 yrs, $p < 0.01$) and co-infection with B + C was associated with even better survival (82 % - $p < 0.001$). The 5-yr survival in pediatric recipients was 79 % and was independent of exact patient age. In contrast, age influenced 5-yr survival in adults (74 %: 16-45 yrs, 70 %: 46-60 yrs, 64 %: > 60 yrs) ($p < 0.001$). When retransplantation (Retx) was indicated, graft survival in electively operated patients for 2nd and 3rd LT (53 % and 46 %, respectively) was better than that observed in urgently

operated patients: 42 % and 34 %, respectively ($p < 0.001$). Alternative procedures (AP) to full size cadaveric transplant (FSCT) were increasingly used during the last 10 yrs accounting for 17 % of all LT in 2007. Among AP, split liver grafts (SL) represent 46 %, living donor grafts (LD, 37 %), reduced liver grafts (RL, 12 %), and domino transplants (DT, 6 %). In rank order of survivals, 5-yr graft survivals were 57 % for RL, 62 % for SL, 64 % for FSCT, 70 % for LD and, 55 % for DT.

Evolution during the last 15 years

The evolution of main indications, surgical techniques and results during the last 15 years was assessed by comparing 3 periods: 1) 1990-1995; 2) 1995-2000, and 3) 2000-2005.

With regard to the indication, the results showed an increase of alcoholic cirrhosis (20 % in the recent period vs 15 % in 1990-1995), virus C related cirrhosis (16 % in the recent period vs 11 % in 1990-1995), and hepatocellular carcinoma (16 % in the recent period vs 9 % in 1990-1995). Concerning the outcome, LT is providing a survival reaching 85 % at 1 year, with the exception of fulminant hepatitis (75 %). One and 5-year patient survival has significantly improved for all indications including hepatocellular carcinoma (75 to 89 % at 1-year and 46 to 60 % at 5-year, respectively from 1990-1995 to 2000-2005). The lowest progression was noted for virus C related cirrhosis (81 to 87 % at 1-year whereas 5-year survival did not change). Regarding surgical techniques, split liver and living donor LT have increased to represent currently each one 6 % of all LT. A dramatic impro-

vement in 1- and 5-year patient survival was observed in cadaveric full size LT (78 to 87 % at 1-year and 64 to 69 % at 5-year, respectively from 1990-1995 to 2000-2005) and split liver (64 to 85 % at 1-year and 55 to 73 % at 5-year, respectively from 1990-1995 to 2000-2005). One-year survival of living donor LT improved (73 to 86 % from 1990-1995 to 2000-2005) whereas 5-year survival did not change.

Conclusion

Improved patient management and surgical technique, and more effective immunosuppression still lead to significant improvements in the outcome of LT. To address the organ shortage, alternatives to conventional LT are increasingly used with the use of marginal donors and living donors being the most prevalent.