

HBP SURGERY WEEK 2023

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European multicenter laparoscopic donor hepatectomy

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Living donor liver transplantation (LDLT) has been utilized as a treatment strategy for advanced liver disease patients for over 20 years. After the 2 first failed attempts by Raia et al. and the first success obtained by Strong et al.in 1989, LDLT mostly using the donor left lateral segment has rapidly expanded worldwide thanks first to Broelsch in 1991 who reported the first large series of 20 pediatric recipients. The pediatric to adult transition was realized in Asia first (Japan 1993 left lobe-1994 right lobe) then America (Emond 1996) and Europe (Hamburg, Ghent, Brussels). LDLT is a phenomenal operation requiring more sophisticated surgical techniques; higher qualifications of transplant surgeons (which may limit its wider applications) and plays a pivotal role in promoting the developments of liver surgery and transplant surgery. Its challenges are mostly represented by graft dysfunction and management of portal hypertension when dealing with small for size grafts. Yet still different perspectives in Western vs. Eastern countries essentially due to donor organ pool (brain-death vs living donation). Minimally invasive liver surgery is the current approach especially for primary and secondary liver tumors, gaining overall a general consensus. In view of this, it is no surprise that MILS also involved living liver donation which, with the laparoscopic approach, saw the fundamental stages of development between the first and the second decade of 2000. Europe played a pioneering role in promoting MIDHs starting with application in pediatric LDLT with Cherqui and Soubrane (Cherqui 2001, Soubrane 2006), moving into the adult with the first series of left (Troisi 2013) and right lobes (Soubrane 2013, Rotellar 2014). The success of MIDHs then naturally evolved and shifted to the East where LDLT is a standard activity compared with the West. The European Liver Transplant Registry (update June 2022) recorded 11424 LDLT in 104 LTx centers. However, to date, only 27/104 (26%) are still active but with a scarce annual performance (<10 cases/y). Since 2011 the annual number of LDLT is progressively diminished up to 100/y with the only exception of Turkey where LDLT is the unique option. Accordingly, we noticed an increase of grafts from non-heart-beating-donors up to 35% but a decrease of split and LDLT up to 20% and 30% respectively. The increase of BDD is probably the most important reason for the overall decrease of LDLT in EU. In Italy last year 25% of BDD have been registered while the top EU countries for donation are showing 30 and 37% of BDD.

As a result of all this it is understood how LDLT is a niche activity in Europe and essentially reserved for study protocols concerning transplant oncology (RAPID procedures and others) (Settmacher U 2023). MIDHs are to date performed in very few centers and represent a total of about 450 cases from 2001 to date.

The approach is essentially laparoscopic although new centers with less laparoscopic experience prefer the open to robotic transition.

In conclusion, although the pioneers of MIDH conceived and disseminated the techniques from old Europe, LDLTs with MIDH approach are not a competitive option with standard transplantation that is provided by BD donors and, in recent years, by selected NHBD. Transplant oncology could maintain high interest in these techniques that are certainly reproducible by expert centers while still fostering the technological and pharmacological development of partial organ transplantation



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Selected references: Raia S, Lancet 1989; Strong RW et Al, N Engl J Med 1990; Broelsch CE et Al. Ann Surg 1991; Yamaoka Y et Al, Transplantation. 1994; Emond JC et Al. Ann Surg 1996; Cherqui D et al Lancet 2001; Soubrane O et Al, Ann Surg 2006; Troisi RI et Al, Am J T 2013; Soubrane O et Al, Am J T 2013; Rotellar F et Al, Am J T2014); Settmacher U et AL, Ann Surg 2023)