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EDITORIAL

"It never rains it pours!"

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The most effective therapy for end stage liver disease is transplantation. Immunosuppression and surgical techniques have improved the long term survival of patients following liver transplantation; this had led to an increase in demand for organs (1).

The liver has remarkable regenerative properties and because of this it is possible to transplant part of a liver into an individual. This can be either as a "split" liver, where a cadaveric liver is split in two and transplanted into two individuals or as a live donor liver transplant (LDLT) (2). It has been shown that within 7 days of surgery for an LDLT, both a transplanted right lobe and a remnant left lobe will have increased in size by approximately 100% (3, 4). Subsequent studies however have shown that functional recovery occurs more gradually than the recovery of liver volume and tends to occur over around 6 months (5).

Historically there has been a shortage of donor livers for paediatric patients awaiting transplantation (3). Split liver transplantation has had a dramatic effect on paediatric waiting list mortality, reducing it to almost zero (6). The situation is different in adults and LDLT is currently the most effective way of overcoming the organ shortages for adults (1).

When it was first introduced LDLT was a way in which parents with children with liver disease could donate part of their healthy liver to their child. The first report of a successful LDLT was in 1989 when a 2 year old girl received a portion of her mother's liver (7, 8). Since then LDLT has become increasingly common. Donor recipients tend to come from a patients family or close friends. In January 2013, the first live liver donation to a complete stranger took place in the UK (9).

The benefit of using a living donor is the ability to perform a transplant when it is clinically indicated, the complications associated with organ preservation are minimised and primary non function is rare (3). If a patient is critically unwell it may even be possible to conduct the two operations simultaneously and the transplant to occur very quickly (10).

There has been a vast difference uptake around the world with the uptake in the east being much greater than in the west. According the Japanese Transplant Society, the number of LDLT's in adults has increased each year (5) whereas in the US and Europe the uptake is lower. LDLT accounts for 3% of the total liver transplantation performed in Europe (5).

Nice reported the evidence of the efficacy of adult to adult transplantation from a systematic review and a large case control study (13). No significant difference in 12 months recipient survival was found in the studies included in the review (80-100% in the living donor group and 75-90% in the cadaveric group). Graft survival was reported at 12 months in the study and was 75-89% in the living donor group and 73-89% in the cadaveric group (11-13).

In a review of 8 primary studies assessing outcomes of adult to child transplantation, Nice report that 6 months survival was similar in the cadaveric and living donor transplantation groups (14). However the median survival at 5 years was higher in the living donor group (92%) than the cadaveric group (81%). This was also true for graft rates (median 5 year rate was 81% in the living donor group and 73% in the cadaveric group).

The obvious disadvantage for this technique is the risk to the donor of either death or a serious complication (3). In a systematic review of donor outcomes it was reported that nearly all donors had returned to normal activity by 6 months (based on 18 studies) (11, 13) and that by 6 months the donors liver had regenerated reaching a median 89% of their original size (based on 16 studies). Donor mortality was estimated to be around 0.2% (12/6000 (11)) 7 of these deaths involved adult to adult donation and the risk was higher for those donating the right lobe (0.23-0.5%) than for the left lobe (0.05-0.21%)

LDLT offers hope to individuals with end stage liver disease when there is high waiting list mortality. However there are significant risks to the donor which need to be carefully addressed before an LDLT is undertaken (1). Although the supply of livers for paediatric patients is better since the introduction of split liver transplants, there have been significant improvements in outcome from LDLT in the past few years and long term survival seems to be better than with a cadaveric donor.

In Iran, the first LDLT in children was performed in Shiraz in 1999 (15). Before 1999 nearly all children with end-stage liver disease died. The paper in this journal submitted by Haseli et al., presents the results of 12 years of experience with LDLT in children (16). The study shows a 1 year survival of 83 and 88% after the patients who had died at 1 and 3 months had been removed from the study (16). There was a higher mortality rate (47.4% of all deaths) in the post operative period than reported in other studies (16). This has been attributed to selection of more critically ill patients and possibly some limitations on health care (16). However the introduction of LDLT in Iran has had a huge impact on the survival of children with end stage liver disease and has gone some way to solve the problem of the shortage of cadaveric organ donations. LDLT is now well established in Iran and has satisfactory results for donors and recipients (16). Given that prior to the introduction of LDLT mortality was nearly100% in children, there is now hope that these patients will survive longer.

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