Indian J Gastroenterol (November–December 2014) 33(6):573–574
DOI 10.1007/s12664-014-0478-7

LETTER

# Nonalcoholic fatty liver disease among potential live liver donors—A preliminary experience from Sri Lanka

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Received: 24 February 2014 / Accepted: 9 May 2014 / Published online: 3 June 2014


Dear Editor:

Living-donor liver transplantation (LDLT) has become an effective alternative to cadaveric organ shortage in Asia [1]. It is technically demanding and raises special concerns in donors as well as recipients [2]. Careful donor selection is vital. The reasons for donor rejection are multifactorial and need to be clearly understood [3, 4].

Presence of hepatic steatosis is one of the major concerns for the donor and recipient. Some of these include delayed graft function, primary nonfunction, donor mortality, morbidity, and effects on liver volume estimation [5]. Liver transplantation in Sri Lanka is still in its early stages and faces unique problems due to the high incidence of nonalcoholic fatty liver disease (NAFLD) in the country. This preliminary data highlights our initial experience with donor assessment.

Thirty-four consecutive potential live liver donors who attended to the North Colombo Liver Transplantation Service from June 2011 to May 2013 were studied prospectively. A strict protocol was followed in donor assessment. Donors' sociodemographic variables, current medical condition, lifestyle habits with special emphasis on identification of alcohol consumption above the safe limit (Asian standard 14 units/week for men, 7 units/week for women), and all past medical records were analyzed. Unsuitable donors were rejected during the initial interview. Suitable candidates underwent a detailed biochemical assessment and infective screening. All donors proceeding to this stage underwent ultrasound scanning of abdomen by two radiologists. Potential donors with satisfactory results then underwent further radiological investigations which included computed tomography (CT) and/or magnetic resonance cholangiography (MRC). Donors who completed this stage underwent ultrasound-guided liver biopsy as a part of their preoperative evaluation. After completing the work-up, potential donors were evaluated by the institutional ethical review committee. Final approval was by the Ministry of Health, Sri Lanka.

The majority 25/34 (73.5 %) of potential donors were males. Their median age was 37 years (range 21–57). Median BMI was 23 kg/m$^2$ (range 17–30.68). Only five subjects (14.7 %) eventually qualified for donation; the rejection rate was 85 % (Table 1). Nine donors were found to have altered liver profile with elevated aspartate aminotransferase (AST) and alanine aminotransferase (ALT) (Table 1). Four more potential donors had fatty change on ultrasound scanning despite a normal liver biochemistry. Two more donors had isolated elevation of bilirubin levels suggesting Gilbert syndrome or channel disorders. There were three rejections related to the hepatobiliary anatomy including splenomegaly, fibrotic liver, and inadequate left lobe volume. Six were rejected due to presence of other medical conditions. Three others had miscellaneous causes, one of whom had a strong family history of autoimmune hepatitis. Two donors withdrew from the evaluation. In this cohort, 15/34 (44.1 %) donors were related. Out of the 19 nonrelated donors, 10 (52.6 %) were Buddhist monks. Among them, 63 % had liver biochemistry or ultrasound suggestive of NAFLD. Five individuals have donated following this rigorous screening protocol. Four donors had uneventful postoperative recovery following the hepatectomy and are currently healthy. One monk who had impaired glucose tolerance and steatosis involving 10 % of the liver developed transient liver dysfunction and prolonged cholestasis postoperatively. His liver profile normalized in 6 months.

In previous published data, donor rejection rates and the reasons for rejection are variable. In many, the main reason for

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**Table 1** Causes for donor rejection

| Reason for nonutilization | *n*=29 | Percentage (%) |
|---|---|---|
| Comorbidities | 6 | 20.7 |
| Change in consent | 2 | 6.8 |
| High suspicion of NAFLD | 13 | 44.8 |
| Other abnormalities in liver tests | 2 | 6.8 |
| Unsatisfactory hepatobiliary anatomy | 3 | 10.3 |
| Other | 3 | 10.3 |

*NAFLD* nonalcoholic fatty liver disease

donor rejection was also reported to be NAFLD. A center in Middle East had fatty liver in 51.6 %, unfavorable anatomy in 35 %, small remnant liver volume in 23 %, reduced graft to recipient body weight ratio in 11.6 %, and donor withdrawal in 10 % [3]. The potential donor liver utilization rate was 56 %. In a similar study from the West, 60 % of evaluated donors were not accepted. In this cohort, 17 % had medical contraindications and 11 % had anatomical contraindications. Donor liver steatosis was detected in only 6 %. But here, most recipients received a cadaveric graft before the work-up of the living donor was completed [4]. In our series, the very low graft acceptance rate clearly reflects the impact of NAFLD in the country on a newly started liver transplantation program. In well-established centers, presence of hepatic steatosis up to 20 % in the donor is considered acceptable [6]. In some centers, this limit extends up to 30 % [6]. An intensive program to reduce the fat content followed by graft acceptance is recommended by some [7]. But in a new transplant program, such steps may be considered to be high risk.

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