BACKGROUND AND AIM:

1. Living liver donation has served to bridge the gap between transplant waitlist and dead donation rate.
2. With around three decades of experience, although the short term outcomes of living donation have been described in literature, the long term health consequences, especially those pertaining to remnant liver are yet to be fully understood.
3. Liver donors do not have a universally accepted follow up protocol post liver donation, and many of them do not undergo any sort of medical evaluation assessing their liver health post donation.
4. The current study is done to assess the prevalence of non alcoholic fatty liver disease and to non invasively assess liver health in living liver donors using sonologic evaluation for steatosis, inflammation and fibrosis.

METHOD:

- This is a retrospective observational hospital based study with the aim of collecting data of those living liver donors who attended liver clinic between March 2021 and October 2021, focusing on "long term remnant liver health" using ultrasonological evaluation of fibrosis, fat and inflammation along with non invasive blood tests FIB4 and APRI.
- A total of thirty six liver donors were included in the study.
- All liver donors were subjected to sonographic evaluation using multi parametric ultrasound machine (Super Sonic Imagine, Aix en Provence, France).
- The Shear wave Elastography (2D-SWE), Sound speed plane wave ultrasound (Ssp.PLUS), Attenuation plane wave ultrasound (Att.PLUS) and Viscosity plane wave ultrasound (Vi.PLUS) were measured in all donors to assess fibrosis, steatosis and inflammation in remnant liver.

RESULTS:

- A total of thirty six liver donors were included in our study with a mean age of 41.5 years, of which 14 were male and 22 were female.
- Two third of the study cohort were found to be obese with BMI >25 kg/m2.
- Three fourth of the study cohort had done liver donation within past 5 years, whereas remaining did the donation before five years.
- The mean APRI & FIB-4 in total study population was 0.275 & 0.936 respectively. Although APRI score was not suggestive of significant fibrosis, FIB-4 was suggestive of significant fibrosis in more than 5 years post donation group and the difference was found to be statistically significant.
- The mean values of 2D SWE, Vi.PLUS, Ssp.PLUS & Att.PLUS in total study cohort were 7.31 kPa, 2.3 Pa.s, 1535 m/s and 0.49 dB/cm/MHz respectively.
- The mean values of 2D SWE, Vi.PLUS, Ssp.PLUS & Att.PLUS in donors upto 5 years post donation were 7.08 kPa, 2.3 Pa.s, 1536 m/s & 0.49 dB/cm/MHz respectively, whereas the mean values in more than 5 years post donation group were 8.0 kPa, 2.3 Pa.s, 1530 m/s & 0.51 dB/cm/MHz respectively.
- Eventhough fibrosis and steatosis was found to be more in more than 5 years post donation group, the difference was not statistically significant.
- Significant fibrosis(>F2) was found in 11 donors, of which 7 had severe fibrosis(>F3) with 2 donors having 2D SWE values in cirrhotic range.
- One donor with 2D SWE value >13kPa was extensively evaluated and was found to have biopsy proven cirrhosis and endoscopic evidence of portal hypertension.
- Significant steatosis was found in 18 donors.

CONCLUSIONS:

- All parenchymal and cholestatic etiologies are ruled out while selecting a donor, lifestyle liver disorders, especially NAFLD and AFLD can cause histopathological progression in the remnant liver.
- The prevalence of fatty liver disease in our study group was 50%. Significant fibrosis was noted in around 30% of donors.
- We report the first case in published literature of cirrhosis occurring in a liver donor.
- Our donor cohort with a significant proportion having steatosis, inflammation and fibroprogression underscores the importance of regular follow up and evaluation of remnant liver.

REFERENCES: