**Predictors of Quality of Life after Liver Transplant**

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**ABSTRACT**

**Background and Hypothesis**

The impact of chronic liver diseases on patients and their family members is often understated and understudied. Chronic liver diseases can sometimes progress to a need for Liver Transplant (LT). While recent studies have described quality of life (QOL) at different stages of liver disease, the impact of the patient's QOL in LT survivors has not been examined. The importance of studying QOL in patients is due to its effect on the survival of LT recipients. We hypothesize that QOL in LT patients is lower than the general population. Our aim was to describe predictors of QOL in a well-described cohort of LT recipients.

**Methods**

Patients over the age of 18 are approached and enrolled in the study. We used an emerging QOL survey tool, PROMIS, for our assessments. Surveys were administered on an iPad during the clinic visit.

**Results**

The T-scores for post liver transplant patients are lower in physical function, anxiety and depression, but higher in general life satisfaction compared to the general population. LT recipients have similar T-scores in Fatigue. Sleep disturbance, ability to participate in social activities, and pain interference are negatively correlated to general population.

**Conclusion and Potential Impact:**

Previous diagnosis of PBC, HCC, diagnosis of depression, household income, insurance status, Charlson Comorbidity Index and number of non-transport related medications have the highest association with quality of life. Further enrollment is needed to increase the power of the study. However, this can inform physicians the importance of taking these factors into consideration in order to improve the QOL in LT recipients.

**BACKGROUND**

- Chronic Liver Disease is a top 10 cause of death in the US. LT typically is often the last resort for end stage liver disease, however, research for survivorship post transplant and the QOL on patients have not been examined.
- In a recent Polish study, age and gender were found to be the most relevant factors to affect QOL for LT recipients.
- The most recent primary study in conducted in the US was at UCLA in 2010 that examined patients who received LT from 1990-1996, the result showed that, in general, men report significantly higher QOL at 2 year post transplant in ability to function category.
- Another study conducted in Holland examined 153 patients in terms of anxiety and depression. The study found no significant association between demographic variables and trajectories of anxiety and depression.
- There is a lack of studies that examine demographic and medical factors that can affect QOL for LT recipients.
- PROMIS (Patient-Reported Outcomes Measurement Information System) survey is a tool used to measure the social, physical, and mental health of adults and children. The responses are scored and then compared to the general population.
- The general population has a score of 50, with a standard deviation of 10. The higher the score, the better the outcome.

**MATERIALS AND METHODS**

We enrolled LT recipients being seen at the DaLD Clinic at IU Health University Hospital using the criteria.

We performed each review on the patients who enrolled and completed the PROMIS survey in the study.

Inclusion Criteria:
- Adult ≥ 18 years old
- Patient with LT
- Ability to give consent or have a legally authorized representative to do so

Exclusion Criteria:
- Individuals not willing to participate in the survey
- Patients with severe cognitive impairment without a legally authorized representative or caregiver who can complete the survey

After informed consent, we administered several PROMIS surveys: (General life satisfaction: Physical Function, Anxiety, Depression, Sleep Disturbance, Ability to Participate in Social Activities, Pain Interference). We also reviewed their chart. Patient data collected included:
- Demographic: age, gender, insurance status, marital status, highest level of education completed, household income, employment status (current LT and 1 year prior transplant)
- Initial liver disease
- Length after transplant
- Type of transplant
- Number of medications
- History of Anxiety or Depression
- Complications after transplant
- Comorbidity (through chart review)

**CONCLUSIONS**

- General Life satisfaction in post transplant patients is close to the general population. Being on Medicare/Medicaid, lower household income, and higher number of non-transport related medications are associated with a lower General Life Satisfaction.
- Physical Function is lower compared to the mean of the general population. Being on Medicare/Medicaid, patients living in poverty at home, previous diagnosis of PBC, lower household income, less education, increased CCI, and higher number of non-transport related medications are associated with lower physical function scores.
- Anxiety is marginally higher in post transplant patients compared to the general population. Increased age is negatively associated with increased anxiety. Previous diagnosis of PBC and diagnosis of depression are associated with less anxiety.
- Depression is marginally higher in post transplant compared to the general population. Previous diagnosis of PBC of patients on antidepressant, and diagnosis of depression are associated with less depression. Higher number of non-transport-related medications is weakly associated with less depression.
- Fatigue in post transplant patients is similar to the general population. Diagnosis of depression and higher number of non-transport related medication are associated with decreased ability to participate in social activities.
- Sleep disturbance in post transplant patients is similar to the general population. Being on private insurance, being in a relationship, previous diagnosis of two or more liver diseases, and those not included in the survey, patients with some college or technical school education, and no diagnosis of depression are associated with increased sleep disturbances. Patients on tacrolimus compared to cyclosporine shows association with decreased sleep disturbances. There is also a weak association between increased number of non-transport related medications and decreased sleep disturbances.
- Ability to participate in social activities is similar in post transplant patients compared to the general population. African Americans, previous diagnosis of PBC, diagnosis of depression, and lower income associated with less pain interference. Higher CCI and higher number of non-transport related medications are associated increased ability to participate in social activities.
- The rakes of physical activity post transplant patients is similar to the general population. African Americans, previous diagnosis of PBC, diagnosis of depression, and lower income associated with less pain interference. Higher CCI and higher number of non-transport related medications are associated increased pain interference.

**REFERENCES**


