

# Attributes and Outcomes of End Stage Liver Disease as Compared with other Noncancer Patients Admitted to a Geriatric Palliative Care Unit.

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## Background

- End Stage Liver Disease (ESLD), the 12<sup>th</sup> leading cause of mortality in North America, is increasingly more prevalent as a noncancer disease requiring management in palliative care.<sup>1</sup>
- Although the natural trajectory of illness is a gradual decline, once in the decompensated phase of illness, patient's can experience episodic, acute and life-threatening disease exacerbations, often requiring multiple hospital admissions and stabilizations resulting in an uncertainty in prognosis.
- Due to lack of a defined "terminal phase" palliative care is often initiated only when death is perceived as being imminent.
- Palliative care units (PCUs) are a limited resource and are not able to accommodate longer patient admissions.
- There is a scarcity of data regarding the illness experience of patients with ESLD admitted to a PCU<sup>2-4</sup> with an assumption that they follow the same trends as other noncancer terminal conditions.
- Concerns have been raised that ESLD patients may be admitted late in their disease course, not allowing equitable access to services because of concern over a perceived longer length of stay.

## Purpose

This study aims to better characterize the illness experience of patients with ESLD on a geriatric palliative care unit comparing ESLD patients and noncancer patients in terms of admission Palliative Performance Score (PPS), estimated prognosis and length of stay.

## Methods

- A single-center retrospective chart review of all noncancer patients admitted to the palliative care unit at Baycrest Health Sciences, in Toronto, Ontario, between Sept 1, 2011 – April 10, 2015.
- The following data was collected from the medical record:
  - Demographics (age, sex)
  - Admitting diagnosis
  - Source of admission (home, acute care hospital, long term care)
  - Score on the Palliative Performance Scale (PPS) within 7 days of admission (admission PPS)
  - Estimated prognosis
  - Length of stay (LOS)
  - Disposition (death or discharge location)
- No patients were excluded.
- SPSS was utilized for the statistical analysis.
- Patients with hepatocellular carcinoma (HCC) were included in the ESLD group due to the significant association between ESLD diagnoses and development of HCC.<sup>7</sup>

## Results

- Total number of patients included in the study were :
  - Non-cancer (non-ESLD diagnosis): 191 (81%)
  - ESLD diagnosis: 44 (19%)

**Table 1. Sex distribution, mean age (years), LOS (days), PPS by group (\*p<0.001)**

	Overall Noncancer (n=235)	ESLD (n = 44)	Other Noncancer (n=191)
<b>Male</b>	109 (46%)	25 (57%)	84 (44%)
<b>Female</b>	126 (54%)	19 (43%)	107 (56%)
<b>Mean age</b>	84	72*	86*
<b>Mean LOS</b>	30	19	32
<b>Admission PPS (Mean)</b>	32	40*	30*

**Table 2: Pearson Product Moment Correlation between PPS, Estimated Prognosis and LOS for ESLD and Noncancer Patients (\*\*p <0.0001, \*p<0.01)**

Pearson Product Moment Correlation	ESLD (n=44)	Other Noncancer (n=191)
<b>PPS and Estimated Prognosis</b>	0.89**	0.94**
<b>PPS and LOS</b>	0.47**	0.31**
<b>Estimated Prognosis and LOS</b>	0.39*	0.26**

**Table 3: Mean Length of Stay (LOS) in days by Estimated Prognosis for ESLD and Other Noncancer Patients**

Estimated Prognosis on Admission to PCU	ESLD (n = 44)		Other Noncancer (n=191)	
	Number of cases n (%)	Mean LOS (days)	Number of cases n (%)	Mean LOS (days)
<b>&lt; 30 days</b>	1 (2%)	1	59 (31%)	10
<b>31-90 days</b>	13 (30%)	13	59 (31%)	31
<b>91-189 days</b>	27 (61%)	21	71 (37%)	53
<b>181-365 days</b>	3 (7%)	41	2 (1%)	24

**Table 4. Number and percent of non-cancer, non-ESLD diagnoses (n=191).**

Other Noncancer diagnosis	Number (%)
Cardiovascular	68 (36.0)
Dementia	45 (24.0)
(Other) Neurological	25 (13.0)
Respiratory	19 (10.0)
Gastrointestinal	10 (5.0)
Renal	9 (5.0)
Hematological	9 (5.0)
General Frailty	4 (2.0)
Infectious Disease	1 (1.0)
MSK	1 (0.5)

**Table 5. Source of admission number and percentage by group.**

	Overall Noncancer (%) (n=235)	ESLD (%) (n=44)	Other noncancer (%) (n=191)
<b>Acute care hospital</b>	136 (58.0)	29 (66.0)	107 (56.0)
<b>Home</b>	50 (21.0)	13 (29.5)	37 (19.0)
<b>Baycrest</b>	32 (14.0)	2 (4.5)	30 (16.0)
<b>Long-term care</b>	9 (4.0)	0	9 (5.0)
<b>Retirement home</b>	8 (3.0)	0	8 (4.0)

- There were slightly more males in the ESLD group compared to the other noncancer group.
- ESLD patients were significantly younger than the other noncancer patients (p<0.001).
- Admission PPS was significantly higher for ESLD patients compared to other noncancer patients (p<0.001).
- There was no difference in estimated prognosis between ESLD patients and other noncancer patients.
- There was no significant difference in LOS between ESLD patients and other noncancer patients (p=0.18).
- There was a significance in source of admission for the overall group, as both patients with ESLD and other noncancer patients were admitted from acute care more often than other locations (p=0.05).
- There was no significance in disposition (p=0.30).

## Discussion

- Patients admitted with ESLD to the PCU were younger and had a higher PPS score when compared to other noncancer patients. This is not surprising considering patients with ESLD are generally younger and more functional, naturally lending itself to a longer estimated prognosis.<sup>5</sup>
- There was a statistically nonsignificant trend towards a shorter LOS for ESLD patients as compared with other noncancer patients.
- Physician-based estimated prognosis on admission favoured a better prognosis than what actually occurred in the ESLD patient group.
- PPS appeared to correlate slightly better with actual length of stay in the ESLD patients than other noncancer patients.
- PPS and LOS were correlated well in the ESLD patient group, but the ability to reliably estimate prognosis based on clinical judgement and consideration of PPS likely results in an over-expected survival duration.
- PPS should receive stronger consideration over estimated prognosis as a PCU admitting criteria for patients with ESLD.
- Due to the unpredictable nature of complications related to ESLD, prognosis can change rapidly, causing a faster rate of decline. Appreciating this difference in illness trajectory of patients with ESLD on a PCU would have implications for prognosticating and planning for end-of-life care for patients, their families and the care team.

## Limitations

- Results may not generalize to other settings. The Baycrest PCU is unique (hospital that caters to older adults, ties to a long-term care and retirement home).
- The statistical power of the study is limited by the small size of the ESLD group.
- Other patient comorbidities that may affect survival were not taken into account in analysis.

## Conclusions

Patients with ESLD were younger and had a higher PPS score with no significant difference in estimated prognosis, length of stay, or disposition when compared to other noncancer patients. This indicates that patients with ESLD admitted to a PCU have a unique illness experience. A better characterization of patient population and tailoring to their palliative care requirements will likely lead to a significant benefit among patients with ESLD, their caregivers and health care providers.

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