

**Risk Factors Associated with PTLD Related Mortality in Adult Multivisceral Transplant Recipients – A Single Centre Cohort Study**

Mihnea-Ioan Ionescu<sup>1</sup>, Samantha Ip<sup>2,3,4</sup>, Jessica K Barrett<sup>5</sup>, George Follows<sup>6</sup>, Andrew J Butler<sup>1</sup>, Lisa M Sharkey<sup>1</sup>

<sup>1</sup>Sir Roy Calne Abdominal Transplant Unit, Addenbrookes Hospital, Cambridge University Hospitals NHS Foundation Trust, Cambridge, UK

<sup>2</sup>British Heart Foundation Cardiovascular Epidemiology Unit, Department of Public Health and Primary Care, University of Cambridge, Cambridge, UK

<sup>3</sup>Victor Phillip Dahdaleh Heart and Lung Research Institute, University of Cambridge, Cambridge, UK

<sup>4</sup>Centre for Cancer Genetic Epidemiology, Department of Public Health and Primary Care, University of Cambridge, Cambridge, UK

<sup>5</sup>MRC Biostatistics Unit, University of Cambridge, Cambridge, UK

<sup>6</sup>Department of Hematology. Addenbrookes Hospital, Cambridge University Hospitals NHS Foundation Trust, Cambridge, UK

**Abstract**

*Background:* PTLD is a heterogeneous group of lymphoproliferative diseases which can add significant mortality following multivisceral transplantation (MVTx). Our study aimed to identify potential risk factors of mortality in adult MVTx recipients who developed PTLD.

*Methods:* All adult recipients of intestinal-containing grafts transplanted in our institution between 2013 and 2022, and who developed PTLD, were included in the study.

*Results:* PTLD-associated mortality was 28.6% (6/21). Increased relative risk of mortality was associated with Stage 3 ECOG performance score (p=0.005; HR 34.77; 95%CI 2.94-410.91), if the recipients had a splenectomy (p=0.036; HR 14.36; 95%CI 1.19-172.89), or required retransplantation (p=0.039; HR 11.23; 95% CI 1.13-112.12). There was a significant trend for increased risk of PTLD mortality with higher peak EBV load (p=0.008), longer time from MVTx to PTLD diagnosis (p=0.008), and higher donor age (p<0.001). Peak LDH before treatment commencement was significantly higher in the mortality group vs the survival group (520.3 ± 422.8 IU/L vs 321.8 ± 154.4 IU/L; HR 1.00, 95%CI 1.00 to 1.01, p=0.019). Peak viral load prior to treatment initiation (Cycle Threshold (CT) cutoff = 32) correlated with the relative risk of death in MVTx patients who developed PTLD [29.4 (3.5) CTs in survivors compared to 23.0 (4.0) CTs in the mortality group].

*Conclusions:* This is the first study to identify risk factors for PTLD-associated mortality in an adult MVTx recipient cohort. Validation in larger multicentre studies and subsequent risk stratification according to these risk factors may contribute to better survival in this group of patients.

**Key words:** multivisceral Transplantation, post-transplant Lymphoproliferative disorders, Epstein-Barr viraemia