T cell phenotypes are distinctively different in HVL in Liver Tx vs Heart Tx visualized by CD4+ T cells.

**METHODS**

**1. Patient characteristics between groups**

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean Age</th>
<th>Mean BMI</th>
<th>Mean Acute GVHD</th>
<th>Mean Chronic GVHD</th>
<th>Mean Karnofsky</th>
<th>Mean Tacrolimus level (ng/mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liver</td>
<td>12.2 (7.4, 17.3)</td>
<td>5.9 (3.5, 7.9)</td>
<td>14.0 (8.5, 21.3)</td>
<td>12.4 (8.5, 17.6)</td>
<td>70 (30/100)</td>
<td>15 (3.9, 12.7)</td>
</tr>
<tr>
<td>Heart</td>
<td>12.2 (7.4, 17.3)</td>
<td>5.9 (3.5, 7.9)</td>
<td>14.0 (8.5, 21.3)</td>
<td>12.4 (8.5, 17.6)</td>
<td>70 (30/100)</td>
<td>15 (3.9, 12.7)</td>
</tr>
</tbody>
</table>

**2. Patient characteristics between groups**

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean Age</th>
<th>Mean BMI</th>
<th>Mean Acute GVHD</th>
<th>Mean Chronic GVHD</th>
<th>Mean Karnofsky</th>
<th>Mean Tacrolimus level (ng/mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liver</td>
<td>12.2 (7.4, 17.3)</td>
<td>5.9 (3.5, 7.9)</td>
<td>14.0 (8.5, 21.3)</td>
<td>12.4 (8.5, 17.6)</td>
<td>70 (30/100)</td>
<td>15 (3.9, 12.7)</td>
</tr>
<tr>
<td>Heart</td>
<td>12.2 (7.4, 17.3)</td>
<td>5.9 (3.5, 7.9)</td>
<td>14.0 (8.5, 21.3)</td>
<td>12.4 (8.5, 17.6)</td>
<td>70 (30/100)</td>
<td>15 (3.9, 12.7)</td>
</tr>
</tbody>
</table>

**3. Patient characteristics between groups**

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean Age</th>
<th>Mean BMI</th>
<th>Mean Acute GVHD</th>
<th>Mean Chronic GVHD</th>
<th>Mean Karnofsky</th>
<th>Mean Tacrolimus level (ng/mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liver</td>
<td>12.2 (7.4, 17.3)</td>
<td>5.9 (3.5, 7.9)</td>
<td>14.0 (8.5, 21.3)</td>
<td>12.4 (8.5, 17.6)</td>
<td>70 (30/100)</td>
<td>15 (3.9, 12.7)</td>
</tr>
<tr>
<td>Heart</td>
<td>12.2 (7.4, 17.3)</td>
<td>5.9 (3.5, 7.9)</td>
<td>14.0 (8.5, 21.3)</td>
<td>12.4 (8.5, 17.6)</td>
<td>70 (30/100)</td>
<td>15 (3.9, 12.7)</td>
</tr>
</tbody>
</table>

**4. Flow cytometry:**

- **Markers to define exhaustion/memory subset were used for staining.**
- **Floweji was used for flow cytometry data analysis and for visualizing with ISE (T-distributed Stochastic Neighbor embedding).**
- **GraphPad Prism was used for statistical analysis.**

**DISCUSSION**

1. T-cell phenotypes have distinct features in different organ Tx recipients. This study identifies major differences in phenotypic features of circulating CD4+ T cells from Heart vs Liver Tx recipients. This study is approved by Institutional review board at University of Pittsburgh.

**SUMMARY**

- Phenotypic features of CD4+ T cells are paralleled with our previous results on CD8+ T cell phenotypes in the same cohorts.
- Different organ Tx predispose towards different susceptibility to EBV infection/reaction, resulting chronic high EBV loads. Further, this may determine the risk for PTLD. Potential explanations for Tx recipients who maintain functional immunity are:
  - Different intensity of immunosuppression
  - Different types of induction therapy
  - Different inflammatory/proinflammatory cytokine environment
  - Degrees of exhaustion correlate with transcription factors: T-bet/Eomes might be used as biomarker to monitor T cell exhaustion.

**ACKNOWLEDGEMENTS**

- This project was supported by the Hillman Center for Pediatric Transplantation at Children's Hospital of Pittsburgh of UPMC and Thomas E. Starzl Postdoctoral Fellowship Award in Transplantation Biology.
- We acknowledge Margaret Abraham, Noreen Jeffrey, and Sajid Musa to coordinate this study.

**DISCLOSURE**

- This study is approved by Institutional review board at University of Pittsburgh (PRO1886049/PRO15010401).
- None of the author has conflicting interest to this study.

**REFERENCES**

1. Yamada et al. AIT 2016 manuscript in review.