DSA-NEGATIVE MICROVASCULAR INFLAMMATION IN KIDNEY TRANSPLANT BIOPSIES: GENE EXPRESSION COMPARISON WITH NATIVE AND TRANSPANT KIDNEY CONTROLS

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BACKGROUND AND OBJECTIVES

Microvascular inflammation (MVI, g+ptc ≥2) in kidney transplant (KT) biopsies from patients without detectable anti-HLA donor specific antibodies (DSA) presents a diagnostic and therapeutic dilemma.

There is a need to develop novel tools to characterize this entity and its pathophysiology better so it can be further interpreted and more effectively treated in the future.

The aim of this study was to further understand the significance of these changes by characterizing their molecular phenotype compared to other native and transplant kidney biopsies.

METHODS

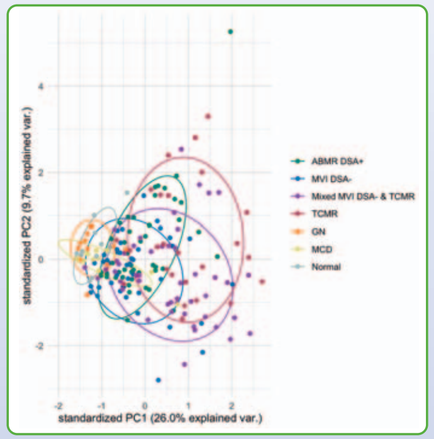
195 archival FFPE human kidney biopsies
4 institutions (Canada and Spain)

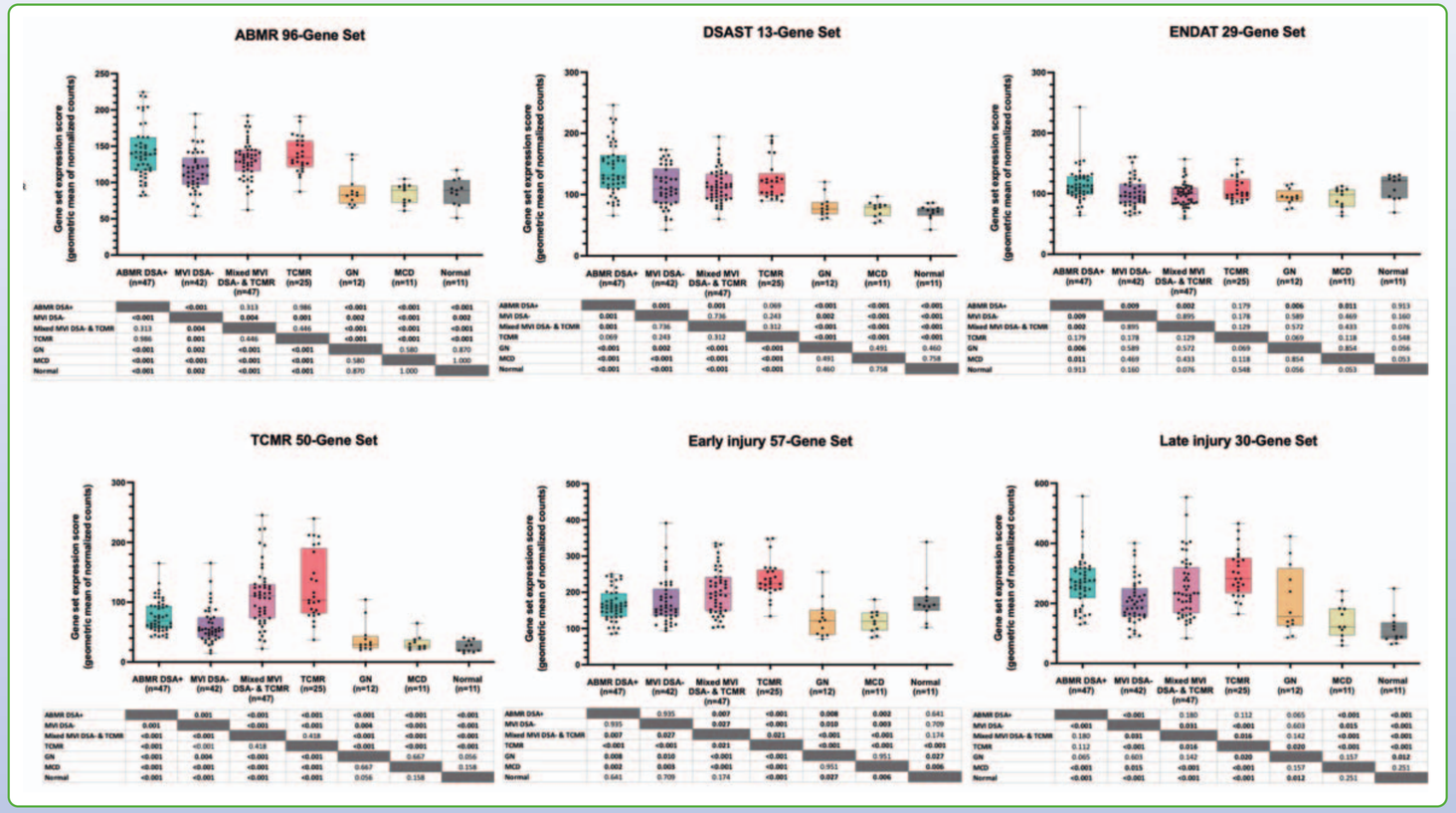
- ABMR DSA+ (n=42)
- MVI (n=47)
- Mixed MVI & TCMR (n=47)
- TCMR (n=25)
- GN (n=12)
- MCD (n=11)
- Normal (n=11)

- The NanoString Human Organ Transplant panel (770 genes) was used to measure intragraft gene expression.
- Expression of several literature-derived gene sets, including transcripts associated with ABMR, DSA (DSAST), endothelial injury (ENDAT), TCMR, early injury and late injury, were compared between groups.

** GN = endocapillary proliferative glomerulonephritis in native kidney biopsies / MCD = minimal change disease in native kidney biopsies / Normal = Normal implant biopsies*

RESULTS





CONCLUSIONS

These results suggest that DSA-negative MVI displays a lower expression of ABMR-related genes than ABMR, but similar to MVI+TCMR and higher than native kidney biopsies with or without glomerulonephritis. Further work is underway to evaluate the potential role of non-HLA DSA and recognition of missing self in these cases.

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