Mucosal Associated Invariant T-cells in renal tissue from patients with Recurrent Urinary Tract Infections

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Background
• Mucosal Associated Invariant T (MAIT)-cells: innate like T-cells that recognize vitamin B metabolites produced by bacteria
• 10% of the T-cells in human blood, highly abundant in the mucosa of the liver, intestines and lungs
• Unknown whether MAIT cells reside in renal tissue

AIMS: (I) Determine whether MAIT cells are present in renal tissue
(II) Determine whether MAIT cells in renal tissue play a role in recurrent urinary tract infections

Methods
• We used fluorescently-labelled MR1-tetramer in conjunction with 14-color flowcytometry to identify MAIT cells in:
  1. Healthy renal tissue: kidneys surgically removed because of renal cell carcinoma (distant non-tumorous tissue): n=5
  2. Renal allografts, explanted after allograft failure due to RUTI: n=5 or other causes (n=8)

Results
(I) MAIT cells are present in renal tissue. Some RUTI kidneys contain a high amount of MAIT cells

(II) MAIT cells in renal allografts display a tissue-resident phenotype. There is a trend towards a higher percentage of MAIT cells expressing the tissue-resident markers CD69 and CD103 in the RUTI kidneys

(III) MAIT cells in RUTI kidneys display a less cytotoxic phenotype

Conclusion
1. MAIT cells are present in renal tissue
2. Some kidneys that have been subjected to RUTI seem to contain more MAIT cells
3. MAIT cells in RUTI kidneys display a tissue resident and quiescent phenotype, which may suggest that after RUTI, MAIT cell remain in renal tissue

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