

# Methenamine Hippurate use in renal transplant recipients

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## Introduction

Urinary tract infections(UTI) are the most common cause of infection in kidney transplant recipients. Recurrent UTIs are not only a significant cause of morbidity and mortality in renal transplant recipients, but are associated with loss of graft function. Independent risk factors for recurrent UTIs are age, gender, urological abnormalities, and a pre-transplant history of recurrent UTIs. Prophylactic antibiotics predispose to antibiotic resistance, while D-mannose<sup>1</sup> and faecal microbiota transplantation(FMT) are not a resolution<sup>2</sup>. Methenamine, a non-antibiotic compound used as urinary anti-septic, has published efficacy in non-transplant patients<sup>3</sup>, but limited data in kidney transplant patients.

## Methods

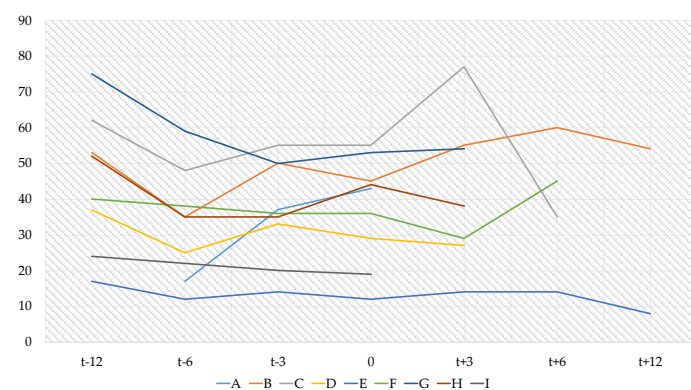
Single centre retrospective review of use of Methenamine Hippurate(MH) in renal transplant patients. We reviewed electronic clinical notes to obtain UTI episodes, antibiotic exposure, hospital admissions due to UTI and causative organisms. Pre-treatment period is from transplantation or 3 years pre-treatment when available. The post treatment period was from date of first prescription till study end date or stop date of repeat prescription.

## Results

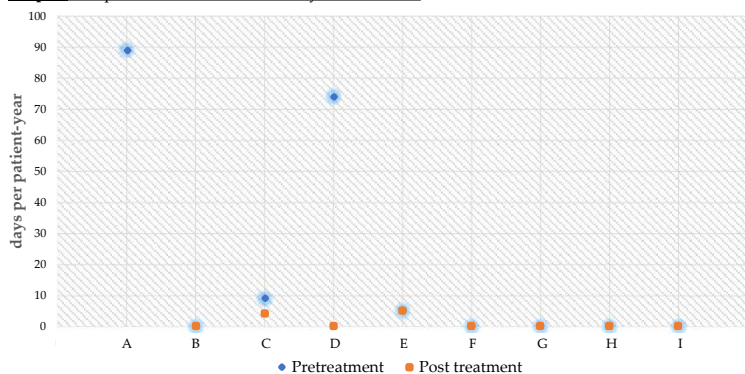
Table 1. Outline of demographics

Patient	Gender	Age (years)	Diabetes	Urological issues	Prophylactic antibiotics as well
A	M	69	Yes	Intermittent self-catheterisation due to chronic urothelial obstruction	No
B	F	78	Yes	Congenital dysplasia; ileal conduit urostomy insitu	Yes
C	M	41	No	Reflux nephropathy; Native kidney stones; Intermittent self-catheterisation due to small bladder volume and reflux	No
D	F	56	Yes	Nil	No
E	F	64	No	Nil	No
F	F	43	No	Nil	No
G	F	31	No	Nil	Yes
H	F	48	No	Nil	No
I	M	55	Yes	Keratinising squamous metaplasia of bladder. Chronic cystitis with pseudomonas colonisation.	No

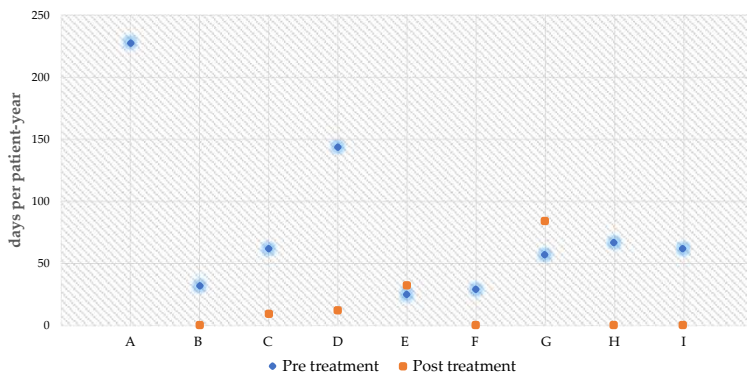
Graph 1. Variation in transplant eGFR over time per patient



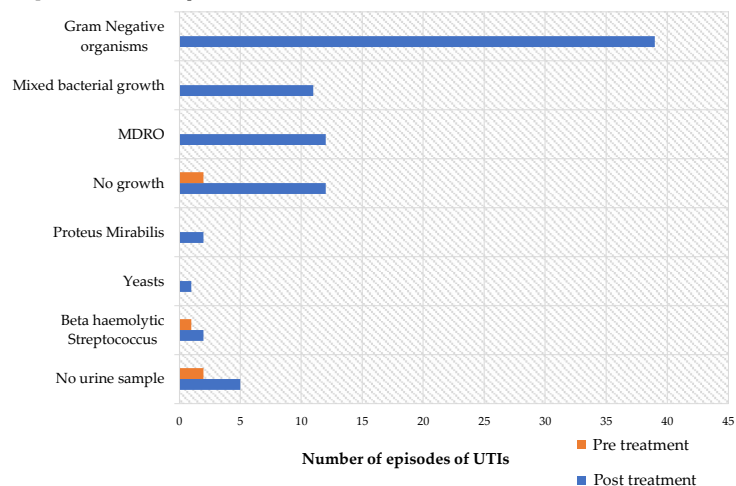
Graph 2. Hospital admission due to urinary tract infection



Graph 3. Treatment dose antibiotic exposure



Graph 4. Urine culture report



## Conclusion

- MH is an antiseptic and reduces antibiotic exposure rates for renal transplant patients with recurrent UTIs.
- No patient reported adverse effect
- No associated loss of graft function
- Reduction in total antibiotic exposure and hospital admissions seen in patients with urological anomalies and with previous multi-drug resistant organism (MDRO) UTIs.

## Recommendation

- Longer follow period
- Larger patient cohort to facilitate understanding of impact on diabetic patients
- This hypothesis needs to be tested in a randomised control study

## References

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