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Natural history of urogenital tuberculosis: a 20-year review on prevalence of urological outcomes and interventions compared to propensity score-matched controls

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Objective:

Urogenital tuberculosis (UG-TB) is one of the common forms of extrapulmonary tuberculosis. However, accurate epidemiological and clinical data on UG-TB is sparce, as the disease has non-specific manifestations, and there is a general lack of clinical awareness of the disease. The objective of the study is to delineate the natural history and clinical outcomes of UG-TB based on population data, especially on urologically related outcomes.

Patients & Methods:

This is a retrospective cohort study. Data was retrieved from the Clinical Data Analysis and Reporting Systems (CDARS) under the Hospital Authority, Hong Kong. All patients who attended Hospital Authority service with positive urine Mycobacterium Tuberculosis from 1st January 2000 to 30th June 2020 are included. Propensity score matching was performed to select suitable control group from patients in the same period who presented with haematuria, with urine tested negative for Mycobacterium Tuberculosis.

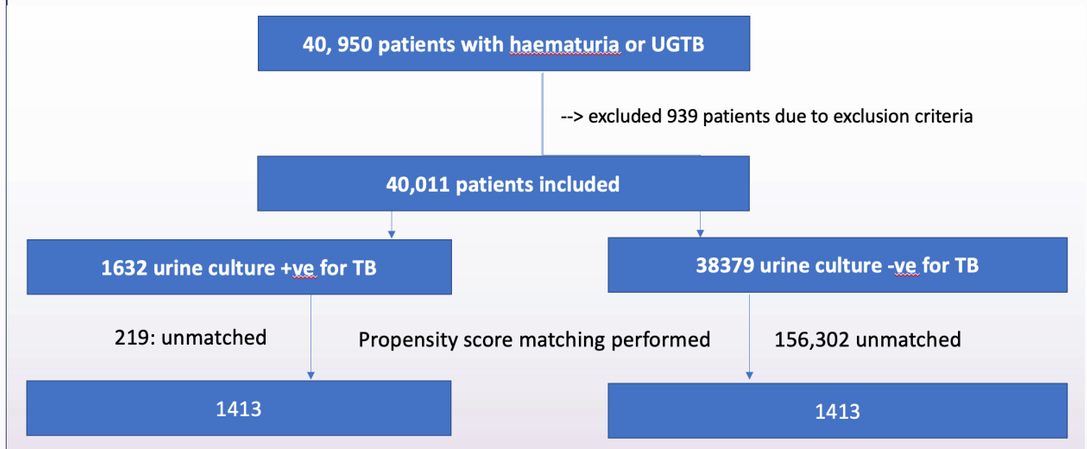

Figure 1. Patient flow diagram

	Control (n=1413)	TB (n=1413)
Age at diagnosis [Mean (SD)]	67.76 (19.62)	63.63 (19.91)
Sex (male) [n(%)]	869 (58.4%)	883 (59.3%)
Baseline DM [n(%)]	243 (16.3%)	171 (11.5%)
Baseline serum Albumin [Mean (SD)]	33.26 (7.07)	32.67 (6.15)
Baseline serum Creatinine [Mean (SD)]	110.29 (89.67)	107.28 (91.03)
Baseline Dialysis [n(%)]	29 (1.9%)	208 (14.0%)
Baseline Cirrhosis [n(%)]	25 (1.7%)	18 (1.2%)
Baseline AIDS [n(%)]	0 (0.0%)	43 (2.9%)

Figure 2. Baseline after propensity score matching

Results:

From 2000-2020, 1686 patients were diagnosed with UG-TB. After propensity score matching, 1413 patients were analysed against controls with a 1:1 ratio. Compared to the control group, UG-TB patients experienced statistically significantly more subsequent dialysis (4.60% vs. 0.21%,p<0.001), PCN insertion (4.18% vs. 2.05%,p=0.001), ureteral stenting (6.37% vs. 3.615,p=0.001), ureterorenoscopy (3.61% vs. 1.98%,p=0.009), and urinary diversion (1.42% vs. 0.57%,p=0.023). There is no statistically significant difference in cystectomy, suprapubic catheterisation, or urethrotomy incidence.

	Control (n=1413)	TB (n=1413)	Chi-squared P-value
Dialysis	**3 (0.21%)**	**65 (4.60%)**	**<0.001**
Renal Transplant	**13 (0.92%)**	**1 (0.07%)**	**0.001**
PCN	**29 (2.05%)**	**59 (4.18%)**	**0.001**
Ureteral stent / cath	**51 (3.61%)**	**90 (6.37%)**	**0.001**
URS	**28 (1.98%)**	**51 (3.61%)**	**0.009**
Ureteral stricture endourology	27	21	0.382
Diversion	**8 (0.57%)**	**20 (1.42%)**	**0.023**
SPC	4	7	0.365
Cystectomy	3	2	0.654
Urethrotomy / Urethral dilatation	17	17	1

Figure 3. Dialysis, interventional radiological, and urological procedure rates

Conclusion:

This is the largest cohort that reports on the natural history of UG-TB across a 20-year period. The results quantify the burden of urological operations in UG-TB patients, demonstrating statistically significant higher rates of intervention.