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**Association of Bladder Post-Void Residual Volume and Urinary Tract Infection in Adult Females**

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**Objectives:**

To determine if there is an association between post-void residual volume and UTI in adult females  
To determine the residual volume in females with UTI  
To describe the patients' clinical profiles

**Methods:** This was a retrospective case-control design with purposive sampling conducted in a tertiary hospital in Davao City, Philippines, involving 430 females admitted from 2018-2021 with urinalysis and a pre- and post- void scan result. Factors analyzed were age, presence or absence of diabetes, menopause, hypertension, cerebrovascular accident, anatomical abnormalities and were compared in terms of incidence of UTI. Patients were stratified to <10%, 10-30%, 30-50%, and >50% retention to identify the minimum percent retention where the incidence of UTI is significant.

**Results:** Among the 430 female patients aged 19-104 years, 78.1% were menopausal, 37.8% were diabetic, 42.3% were hypertensive, 1.8% had cerebrovascular accident, and 0.8% had anatomic abnormalities. In terms of age, there was no significant difference in the mean age group between those with and without UTI. Between menopausal and non-menopausal groups, there was also no statistical difference in the incidence of UTI. The presence of comorbidities mentioned likewise did not reach a statistical difference in terms of the presence or absence of UTI.

The relationship of post-void volume and UTI showed that patients with >10% residual had higher incidence of UTI while the majority of those with <10% residual had lower incidence of UTI. The mean residual volume for those with UTI was 27.75 cc while for those without UTI was 19.70 cc. This was a significant difference of 8.05 cc. Odds ratio revealed that those with post-void residual volume of >10% had 27.87% increase in the chance of having UTI.

**Conclusions:** Adult females with post-void residual volume of >10% are at increased risk for UTI regardless of age, menopausal or not, presence or absence of comorbidities.

Table 1. Clinical Profile of Patients in Relation to Presence or Absence of UTI

Clinical Profile	UTI n=160	Without UTI n=264	P-value
Age, years	66.83 ± 17.66	64.568 ± 17.093	0.091
Menopausal status			
Menopausal	116 (72.5%)	188 (71.2%)	0.388
Non-menopausal	30 (18.8%)	57 (21.6%)	0.759
Comorbidities			
Diabetes mellitus	58 (36.3%)	91 (34.5%)	0.355
Hypertension	63 (39.4%)	105 (39.8%)	0.532
Cerebrovascular disease	2 (1.3%)	5 (1.9%)	0.693
Anatomic abnormalities	0 (0%)	3 (1.1%)	0.912

Table 2. Correlation of Post-void Residual Volume in Patients with and without UTI

Post-void Residual Volume, %	UTI	Without UTI	Odds Ratio	P-value	P-value
>10%	90 (60.4%)	114 (45.4%)	1.2787	0.8469- 1.9306	0.242
<10%	59 (39.6%)	137 (54.6%)			