Incidence of Urinary Tract Infection Post Video-Urodynamics: A Prospective Audit of 2627 Patients 2014-2023

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Hypothesis / aims of study

Video-urodynamic studies (VCMG) is the gold standard investigation for patients with bladder dysfunction. However, it has a risk of urinary tract infection (UTI).

Studies report that the incidence of UTI post-VCMG in the general population is between 1-30% [1].

In patients with spinal cord injury (SCI), it has been reported as 8% [2]. Patients with a neurogenic bladder have complex urological needs and a higher risk of UTI.

The use of prophylactic antibiotics is controversial with no definitive recommendations for its use with VCMG [3].

The objectives of this study was to determine

1. The overall rate of UTI that could be attributable to the VCMG study in the SCI population
2. To report the evolution of UTI rates over 9 years by comparing the results of our previous audit from 2017 to 2023
3. To evaluate the risk of UTI post-VCMG according to bladder management.

Study design, materials and methods

A prospective audit of the incidence of UTI post VCMG was conducted over 9 years, from 2014 to 2023.

Patients were classified according to their bladder management i.e. intermittent self-catheterisation (ISC), suprapubic catheter (SPC), voids on urge (voids), sheath only, strain voiding, pads only and indwelling urethral catheter (IDUC).

A UTI was defined as being symptomatic and requiring antibiotic treatment within 48 hours post VCMG.

All patients had a dipstick urinalysis pre-VCMG. For patients with a symptomatic UTI the VCMG was not performed.

If the patient was asymptomatic the VCMG was conducted irrespective of the urinalysis result except for patients who void who were rebooked post treatment. All urinalysis positive to nitrites had a urine culture performed.

One week post VCMG the patients were contacted and asked if they developed a UTI within 48 hours after their VCMG study according to the definition i.e. symptomatic requiring antibiotics.

References

1. Gurbuz et al 2003
2. Sung-Il et al 2016
3. Foon, Toozs-Hobson and Latthe 2012
4. Lederer et al 2014
5. Farrelly et al 2021
6. Torres da Silva et al 2019

Results and interpretation

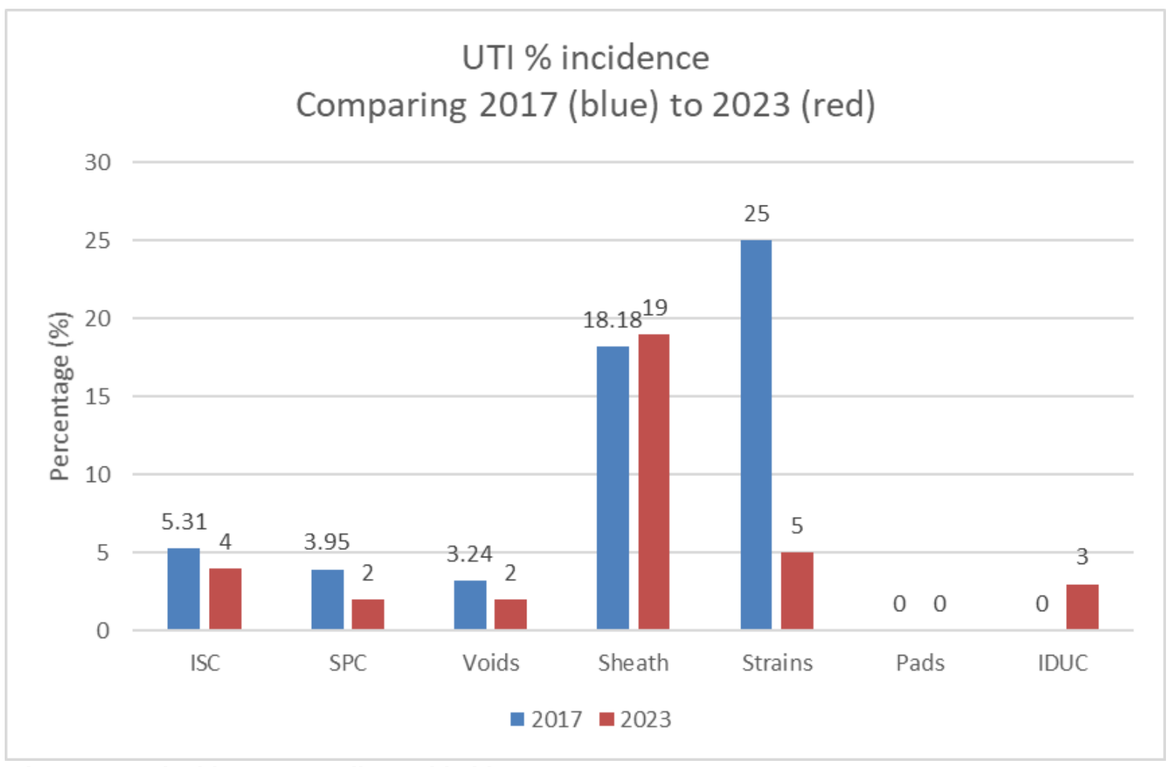

Figure 1 UTI incidence according to bladder management

Number of VCMGs performed from 2014-2017 was 822, and from 2014-2023 was 2627. The overall incidence of UTI post-VCMG in 2017 was 4.44% and this has decreased to 3% in 2023.

The highest incidence of UTI post VCMG was in the sheath drainage only (18.18% in 2017 and 19% in 2023) (Figure 1), and in the strain voiding group 25% in 2017 and this reduced to 5% in 2023.

The IDUC group showed a 0% incidence of UTI (n=66) in 2017, and increased to 3% in 2023 (n=10). This patient group was predominately inpatients and had a silver-coated anti-infective catheter (reduces catheter acquired UTI by 47% [4]). The patients with ISC, SPC, and voiding on urge, UTI rates have reduced.

Our centre's overall UTI incidence is one of the lowest found in the literature [5,6]and demonstrates that prophylactic antibiotics are not needed unless other risk factors (immune compromised).

Conclusion

We believe that our low UTI rates compared to the published literature are for the follow reasons.

1. Highly experienced staff performing VCMG
2. Unique single centre doing a high number of VCMG
3. Protocolled procedure 'always doing the same'.
4. Patient informed verbal consent based on their own UTI risk.

Patient safety is the most important outcome.

Performing audits, analysing and disseminating results year on year demonstrates patient safety, safe practice and contributes to informed patient consent