Urinary Frequency in Patients with Persistent Urinary Incontinence Following Successful Closure of Obstetric Vesicovaginal Fistula

Ali Borazjani1,2, Helina Tadesse3, Fekade Ayenachew3, Margot Damaser2, Lewis Wall4, Howard Goldman2

1Global Innovations for Reproductive Health & Life, USA; 2The Cleveland Clinic, USA; 3Addis Ababa Fistula Hospital, Ethiopia; 4Washington University School of Medicine, USA

Correspondence: Ali Borazjani, borazjani@girlh.org

Background

• Over 50% of women that have undergone “successful” surgical closure of obstetric vesicovaginal fistula (VVF) suffer from lower urinary tract symptoms (LUTS)
• It has been assumed that these patients simply have stress urinary incontinence (SUI), but:
  − Urodynamic studies demonstrate more complex pathology
  − detrusor overactivity, impaired emptying, intrinsic sphincter deficiency, etc.
  − standard treatments for SUI are unsuccessful (~75% failure rate) [4]
• To date, no study has evaluated urinary frequency in this population
  − Likely due to the fact that bladder diaries are impractical as most patients are illiterate and may even be unaccustomed to holding a pen or marking paper.
• We developed a novel and simple method for assessing 24-hour frequency in this patient population

Methods

• N=44 consecutive patients
  − recruited at the Addis Ababa Fistula Hospital in Ethiopia
• All women complained of persistent urinary incontinence or other LUTS following VVF closure.
• Each patient was handed an envelope and several strips of paper (~2x28cm)
• Patients were instructed to tear off a piece of paper and place the torn pieces into the envelope after each micturition.
• Following a 24-hr period, a nurse or nurse’s aid retrieved the envelope and counted the number of pieces in the envelope
• Data used to construct a histogram to assess distribution of urinary frequency
• Pearson correlation test used to test for correlations between 24-hour frequency and:
  − Patient age
  − Duration of labor
  − Time since VVF closure
  − Fistula diameter
• To assess the effect of estimated bladder size (at the time of VVF repair) on 24-hour frequency, a subanalysis was performed using patients with available operative notes
  − Prior to incision, bladder size was estimated by measuring the length from the urethral meatus to the deepest point in the bladder (via a graduated probe)
  − Bladder size classified as small (<4cm), fair (4-7cm), or good (>7cm)
  − One-way ANOVA was used to determine significant differences in 24-hour frequency between patients with different bladder sizes at time of repair.
• Descriptive data was presented using mean ± standard deviation or median and range.

Results

Table 1. Demographics

<table>
<thead>
<tr>
<th></th>
<th>Mean ± SD</th>
<th>Median (Range)</th>
<th>%N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>30 ± 8.9</td>
<td>30 (18-50)</td>
<td>95</td>
</tr>
<tr>
<td>Duration of Labor (days)</td>
<td>3.0 ± 1.5</td>
<td>3 (1-6)</td>
<td>93</td>
</tr>
<tr>
<td>Time since VVF closure (months)</td>
<td>50.3 ± 89.8</td>
<td>7.1 (0.5-419)</td>
<td>80</td>
</tr>
<tr>
<td>Fistula Diameter (cm)</td>
<td>3.1 ± 1.5</td>
<td>3 (1-6)</td>
<td>66</td>
</tr>
<tr>
<td>Presence of foot drop</td>
<td>7.5%</td>
<td></td>
<td>91</td>
</tr>
<tr>
<td>Literacy Rate</td>
<td>0%</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

† Percentage of patients in the study with available records

Figure 1. Distribution of 24-hr Frequency

Figure 1. Envelope and paper strips handed to patients.

Figure 1. Sub analysis of patients with available operative notes (n=22)

Table 2. Results

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall 24-hour frequency</td>
<td>16.6 ± 7.3 (range 3-30)</td>
</tr>
<tr>
<td>% with &gt;8 micturitions</td>
<td>82 (n=36)</td>
</tr>
<tr>
<td>% with &gt;12 micturitions</td>
<td>66 (n=29)</td>
</tr>
<tr>
<td>% with &gt;15 micturitions</td>
<td>55 (n=24)</td>
</tr>
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</table>

Table 2. Correlation Analysis

<table>
<thead>
<tr>
<th></th>
<th>Coefficient</th>
<th>p-value</th>
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<tbody>
<tr>
<td>24-hr Frequency vs:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>patient age</td>
<td>-0.044</td>
<td>0.78</td>
</tr>
<tr>
<td>duration of labor</td>
<td>-0.030</td>
<td>0.85</td>
</tr>
<tr>
<td>time since VVF closure</td>
<td>0.13</td>
<td>0.47</td>
</tr>
<tr>
<td>fistula diameter</td>
<td>0.15</td>
<td>0.45</td>
</tr>
</tbody>
</table>

• Distribution of 24-hour frequency was normally distributed
• Mean 24-hour frequency was 16.6±7.3
• 55% of patients had greater than 15 micturitions in 24-hr
• There was no significant correlations between 24-hour frequency and patient age, duration of labor, time since VVF closure, or fistula diameter.
• Of the 22 patients with available operative notes, 8 (36%), 10 (45%), and 4 (18%) had an estimated bladder size of good, fair, and small, respectively.
  − ANOVA was underpowered to detect a significant difference between groups based on bladder size

Conclusion

• For the first time, we have quantified 24-hour frequency in women who continue to suffer from LUTS following successful VVF closure
• Most patients with complaints of LUTS following VVF closure had symptoms of urinary frequency
• Urinary frequency is a significant clinical problem in this population
  − does not appear to be related to patient age, duration of labor, time since VVF closure, or fistula diameter
• Studies are urgently needed to help elucidate the cause of urinary frequency and determine appropriate treatments

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References