COVID-19 Associated Cystitis (CAC): Infection with SARS-CoV-2 and Subsequent Urinary Symptoms

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**Purpose**

Coronavirus disease 2019 (COVID-19) causes many symptoms in various organ systems, and other viral infections are known to result in lower urinary tract symptoms (LUTS). However, there is scarce literature regarding genitourinary symptoms in COVID-19 disease. We sought to determine if patients with COVID-19 experienced any new or different urologic symptoms.

**Materials and Methods**

With IRB approval, hospital discharged COVID-19 patients completed an AUA Urology Care Foundation Overactive Bladder (OAB) Assessment Tool to determine their current urinary symptoms, and if applicable, how their symptoms changed after recovering from COVID-19. Patients responded to five symptom and five quality-of-life questions (QOL). All questions range from 0 to 5 based on severity for a maximum score of 25. People with normal urinary habits should expect to score near 0 using this assessment tool.

**Results**

We identified 44 patients with new or worsening OAB symptoms, most notably frequency, urgency, and nocturia. The median total OAB symptom score in both men and women with COVID-19 was 18. The median total QOL score for both men and women with COVID-19 was 19. Median age was 64.5 (range 47-82). Median length-of-stay (LOS) was 10 days (range 5-30).

**Conclusion**

COVID-19 patients reported severe de novo genitourinary symptoms, most notably an increase in urgency, frequency, and nocturia. We called these associated urinary symptoms COVID-19 associate cystitis (CAC). It is unclear if these urological symptoms are caused directly by the virus, indirectly through increased inflammation, or through another mechanism. Research is needed to elucidate the specific pathophysiology of OAB symptoms in the context of COVID-19 so urologists can timely and appropriately treat their patients.

<table>
<thead>
<tr>
<th>Classification (n)</th>
<th>Symptom score (median)</th>
<th>Range</th>
<th>QoL score (median)</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>New (39)</td>
<td>18</td>
<td>12-21</td>
<td>19</td>
<td>16-24</td>
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<tr>
<td>Worsening (5)</td>
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<tr>
<td>Before</td>
<td>8</td>
<td>4-10</td>
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<td>8-10</td>
</tr>
<tr>
<td>After</td>
<td>19</td>
<td>17-21</td>
<td>20</td>
<td>19-20</td>
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<tr>
<td>Female (12)</td>
<td>18</td>
<td>15-21</td>
<td>19</td>
<td>16-21</td>
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<tr>
<td>Male (32)</td>
<td>18</td>
<td>12-20</td>
<td>19</td>
<td>16-20</td>
</tr>
</tbody>
</table>

*only “after” symptom scores are included in male/female analysis*