Three-dimensional bladder ultrasonography with the BladderScan® overestimates post void residual after delivery

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Aim of study

Is the three-dimensional bladder ultrasonography (US, using the BVI 3000®, Verathon, WA, USA (BladderScan®) a reliable instrument for measurement of post void residual (PVR) in patients with postpartum urinary retention?

Methods

21 Women with a urinary retention >1000ml within 4-5 hours after delivery
• 17 indwelling urinary catheter for 1 week (protocol)
• 4 patients preferred earlier or later removal urinary catheter

Measurement of post void residual after micturition trial with:
• Bladderscan BVI 3000®
• Clean Intermittent Catheterisation (CIC)

<table>
<thead>
<tr>
<th>BladderScan®</th>
<th>≤ 200 ml</th>
<th>&gt; 200 ml</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 200 ml</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>&gt; 200 ml</td>
<td>16</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>17</td>
<td>4</td>
<td>21</td>
</tr>
</tbody>
</table>

The average PVR difference between measurements with the BladderScan® and CIC was 285 ml (p <0.001). With a cut-off point of 200 ml PVR volume, the sensitivity of the BladderScan® was 100% and the specificity was 5.9%. Positive predictive value was 20 %.

Conclusion

These results indicate that measurement of PVR volume one week postpartum using the BladderScan® is not a reliable method. In 81% of all cases, catheterisation was unnecessary.