Hypothesis / aims of study
Maximum bladder capacity (MBC) serves as a useful clinical parameter in the management of women with overactive bladder (OAB). In clinical practice of the patients with idiopathic detrusor overactivity (IDO), sometimes, estimated MBC might show a large difference according to various measurement tools. We aimed to identify the reproducibility of MBC measured with frequency volume chart (FVC), uroflowmetry (UFM) and urodynamics (UDS) in women with IDO.

Study design, materials and methods
Women with clinical symptoms of OAB who received UDS were included. Of the patients, excluding women with urinary tract infection, neurologic abnormality that affects voiding cycle, bladder outlet obstruction, detrusor underactivity, surgery on urinary tract, or incomplete UDS, women showing IDO in the filling cystometry were included into the final analysis. We collected data on maximal voided volume from 3-day FVC, sum of voided volume and post-void residual volume from UFM, and maximum cystometric capacity from the filling cystometry before a commencement of antimuscarinic treatment. The reproducibility of the MBC determined by each measurement tool was assessed using intraclass correlation coefficient (ICC). ICC’s interpretation is: <0.4 poor, 0.4-0.75 acceptable, or >0.75 excellent.

Results
140 women with clinical symptoms of OAB and UDS-proven IDO were analyzed. The mean age was 66.8 years (range 25 to 95). Mean MBC determined by each measurement tool was 325.7cc in FVC, 244.8cc in UFM, and 293.1cc in UDS. In comparative analysis, UFM-MBC was significantly different with FVC- and UDS-MBC (p<0.001 and p = 0.002, respectively; Paired t-test). However, There was no significant difference between FVC- and UDS-MBC (p=0.398). Table shows acceptable MBC reproducibility between FVC and UDS (ICC = 0.541). On the other hand, MBC reproducibility between UFM and FVC, UDS was poor (ICC = 0.371 and 0.384, respectively).

Table. The reproducibility among the different methods for measuring maximum bladder capacity

<table>
<thead>
<tr>
<th>MBC (cc) (mean±SD)</th>
<th>ICC with FVC</th>
<th>ICC with UFM</th>
<th>ICC with UDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>FVC 325.7±134.3</td>
<td>0.371 (95% CI: 0.007-0.601)</td>
<td>0.541 (95% CI: 0.272-0.711)</td>
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<tr>
<td>UFM 244.8±155.4</td>
<td>0.371 (95% CI: 0.007-0.601)</td>
<td>0.541 (95% CI: 0.272-0.711)</td>
<td>0.384 (95% CI: 0.129-0.564)</td>
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<tr>
<td>UDS 293.1±135.5</td>
<td>0.384 (95% CI: 0.129-0.564)</td>
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</table>


Interpretation of results
MBC measured with UFM was significantly lower that with FVC and UDS, and showed poor reproducibility with FVC and UDS.

Concluding message
Although difference exists in the real estimates of MBC determined by FVC, UFM and UDS, measurement of MBC showed acceptable reproducibility between FVC and UDS in women with IDO.

Specify source of funding or grant
None

Is this a clinical trial?
No

What were the subjects in the study?
HUMAN

Was this study approved by an ethics committee?
Yes

Specify Name of Ethics Committee
Institutional Review Board of Seoul National University Bundang Hospital

Was the Declaration of Helsinki followed?
Yes

Was informed consent obtained from the patients?
No