# Three-Treatment Comparison for Primary Bladder Neck Obstruction: Objective Metrics and Patient Reported Outcome

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**Introduction**: Primary bladder neck obstruction (PBNO) is a functional bladder outlet obstruction. Diagnosis relies on videourodynamic study. This study evaluated treatment outcomes of α-blockers, Botulinum Neurotoxin A (BoNT-A), and transurethral incision of bladder neck (TUI-BN).

**Methods**: This retrospective study included patients aged ≥18 years who were diagnosed with PBNO via VUDS between January 1, 2015, and January 1, 2024. Outcome measures included changes in uroflowmetry parameters, post-void residual (PVR) volume, and global response assessment (GRA). PVR was graded on a six-point scale: Grade 0 (≤50 mL), 1 (51–100 mL), 2 (101–200 mL), 3 (201–300 mL), 4 (301–400 mL), and 5 (>400 mL, urinary retention).

**Results**:

Table 1. Demographic characteristics

| Characteristic | N=66(100%) |
|---|---|
| Mean followed-up time | 12.7 mons |
| Gender | 66(100) |
|   Male | 32(48) |
|   Female | 34(52) |
| Treatment group | 66 (100) |
|   α-blockers | 44(67) |
|   BoNT-A | 5(8) |
|   TUI-BN | 17(25) |
| Any followed-up tool | 66(100) |
|   PVR (including those with both) | 45(68) |
|   UFR (including those with both) | 43(65) |
|   Both | 22(33) |

Among the 44 patients treated with α-blockers, the distribution included Tamsulosin (n = 21), Alfuzosin (n = 2), Doxazosin (n = 7), Silodosin (n = 10), and Terazosin (n = 4). Among the 5 patients treated with BoNT-A, four received 100 units and one received 50 units.

Table 2. Changes in UFR parameters

| | number | Mean ΔQmax | P value | Mean ΔQmean | P value |
|---|---|---|---|---|---|
| **All** | 43 | 89.67% | | 81.99% | |
|   a-blocker | 27 | 42.21% | | 30.25% | |
|   BoNT-A | 2 | -11.27% | 0.083 | -9.38% | 0.064 |
|   TUI-BN | 14 | 195.62% | | 194.81% | |

TUI-BN showed the most improvement in ΔQmax and ΔQmean.

Table 3. Changes in PVR grades following treatment

| | number | Mean ΔPVR | P value |
|---|---|---|---|
| **All** | 45 | -0.36 | |
|   a-blocker | 27 | -0.44 | |
|   BoNT-A | 5 | 1 | 0.141 |
|   TUI-BN | 13 | -0.69 | |

Table 4. Changes in GRA following treatment

| | number | Mean GRA | P value |
|---|---|---|---|
| **All** | 66 | 0.8 | |
|   a-blocker | 44 | 0.59 | |
|   BoNT-A | 5 | 1 | 0.04 |
|   TUI-BN | 17 | 1.29 | |

**Conclusion**: This study reports real-world PBNO treatment outcomes. Although not statistically significant, TUI-BN showed a favorable trend in objective voiding function parameters. Furthermore, TUI-BN showed significantly higher GRA scores than those of other treatments. These results may help patients in making treatment decisions. Larger prospective studies are warranted to validate these results.