Hypothesis / Aim of Study: Doxazosin and tamsulosin are worldwide available and widely used as α1-receptor antagonists (α1-blockers) for the treatment of lower urinary tract symptoms (LUTS) in adult men. Randomized, controlled trials (RCTs) showed that α1-blockers reduce LUTS, as measured by the International Prostate Symptom Score (IPSS), by 20–40%, independent on baseline LUTS severity. The American Urological Association (AUA) guidelines on the ‘Management of BPH: Prostate Hypertrophy’ and the European Association of Urology (EAU) guidelines on the ‘Treatment on Non-neurogenic Male LUTS’ both state that α1-blockers have a similar clinical effectiveness but differ in tolerability when used in appropriate doses [1, 2]. However, these statements are based on indirect comparisons and only few direct comparisons between different α1-blockers. To test this hypothesis, we compared the efficacy and safety of different doses and formulations of doxazosin (immediate release 2 mg, 4 mg and 8 mg and gastroprolonged therapeutic system [GTS] 4 mg or 8 mg) versus tamsulosin (modified release 0.2 mg, 0.4 mg, 0.8 mg or oral controlled absorption System [DCAS] 0.4 mg) in a network meta-analysis.

Study Design, Materials and Methods: The PubMed, EMBASE and Cochrane databases were systematically searched to identify randomized, controlled clinical trials with doxazosin or tamsulosin. Bayesian models estimated efficacy and safety outcomes, including total IPSS (IPSS-T), IPSS quality of life (QoL) and any adverse events (AEs). Comprehensiveness assessments, including tests for heterogeneity, similarity, and consistency ensured unbiased and accurate estimates.

Results: In total, 1,518 abstracts on doxazosin and/or tamsulosin were identified and reviewed of which 40 trials with 12,201 patients were included in our analysis. Improvement of IPSS-T and QoL (mean [95% credible interval, CI]) were largest for doxazosin GTS 4 mg (IPSS-T: -10.08 points [-12.00, -8.02]; QoL: [-1.82 points [-2.53, -1.06]). Mean proportion of any AE ranged from 0.15 to 0.40.

Interpretation of Results (Our findings support the first time that improvements in IPSS-T and QoL were significantly greater and adverse events rate were similar for doxazosin 4 mg compared with most tamsulosin doses and formulations.)

Concluding Message | Contrary to the AUA and EAU guidelines, we found significantly greater clinical effectiveness in terms of total IPSS decrease and QoL increase for doxazosin GTS 4 mg compared with tamsulosin but a similar frequency of AEs.

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Table 1. Search Terms Strings

<table>
<thead>
<tr>
<th>BPH</th>
<th>Doxazosin</th>
<th>Tamsulosin</th>
</tr>
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<tbody>
<tr>
<td>&quot;benign prostatic hyperplasia&quot; OR &quot;prostatic hyperplasia&quot; OR &quot;BPH&quot;</td>
<td>&quot;doxazosin&quot; OR &quot;doxazosin hydrochloride&quot;</td>
<td>&quot;tamsulosin&quot; OR &quot;tamsulosin hydrochloride&quot; OR &quot;tamsulosin HCl&quot; OR &quot;tamsulosin hydrochloride&quot;</td>
</tr>
<tr>
<td>&quot;α1-blockers&quot; OR &quot;α1-adrenoceptor&quot;</td>
<td>&quot;α1-adrenoceptor&quot; OR &quot;α1-adrenoceptor antagonist&quot;</td>
<td>&quot;α1-blockers&quot; OR &quot;α1-adrenoceptor antagonist&quot;</td>
</tr>
</tbody>
</table>

- Abstracts published prior to Dec 2016 were included; randomized clinical trials including a head-to-head comparison between doxazosin and/or tamsulosin and/or placebo and reporting one or more efficacy and tolerability endpoints were included.
- Studies published only in abstract/conference presentation form, studies with non-human subjects (pre-clinical studies), and studies with indications other than LUTS/BPH were excluded.
- Two reviewers independently screened each title and abstract to determine relevant articles for full-text review, with any discrepancies resolved by a third reviewer.

Figure 1. Doxazosin versus Tamsulosin for the Treatment of Male LUTS NMA (IPSS-T)

Table 2. Selected Studies and Reported Baseline Characteristics

Table 3. Mean differences in IPSS-T and QoL as well as mean odds ratios of any AE for different doxazosin versus tamsulosin doses/formulations (mean [95% CI])

CONCLUSIONS

This NMA, inclusive of 40 clinical trials with ~12,000 patients, found that improvements in IPSS-T and QoL were significantly greater and the adverse event rates were similar for doxazosin GTS 4 mg compared with most tamsulosin doses and formulations. Reflectively upon the AUA and EAU guidelines should consider integration of these clinical findings.

DISCLOSURES

This NMA was sponsored by Pfizer. M Celke has no financial relationship with Pfizer Inc. to the present study. Patel D and Chopra I were employees of Pfizer who were paid consultants to Pfizer in connection with the study and development of this poster. Tang W and Hassan T are employees of Pfizer.