Randomized Controlled Trials

**Glycopyrronium Tosylate for the Treatment of Primary Axillary Hyperhidrosis: Prior Treatment Analyses from the ATMOS-1 and ATMOS-2 Phase 3**

**INTRODUCTION**

- Hyperhidrosis, which is excessive sweating beyond that physiologically required to maintain normal thermal regulation, affects approximately 4.8% of the US population.
- Effective management of hyperhidrosis can significantly improve quality of life; however, approved therapeutic options are limited and are often invasive, painful, or time-consuming.
- Axillary Hyperhidrosis Patient Measures (AHPM), consisting of the 4-item Axillary Sweating Daily Diary (ASDD), 6 Weekly Impact (WI) items, and a single-item Patient Global Impression of Change (PGIC), were developed in consultation with the FDA and in consideration of FDA guidance on patient-reported outcomes.
- ASDO axillary sweating severity item (item 2) was specifically developed and validated as an endpoint to support regulatory approval.
- Glycopyrronium tosylate (GT) is a selective cholinergic receptor antagonist that is under evaluation for the treatment of primary axillary hyperhidrosis.
- The efficacy and safety of GT in patients ≥20 years of age with primary axillary hyperhidrosis have been evaluated in two phase 3 trials (ATMOS-1 and ATMOS-2), and the primary results have been previously reported.

**OBJECTIVE**

To evaluate the impact of prior hyperhidrosis treatment on GT efficacy, the results from ATMOS-1 and ATMOS-2 were analyzed based on whether patients had prior treatment (PT; self-reported) or not (No PT).

**METHODS**

**ATMOS-1 and ATMOS-2 Study Design**

- ATMOS-1 (NCT01535251) and ATMOS-2 (NCT01535314) were parallel-group, 4-week, double-blind, placebo-controlled trials in which patients with primary axillary hyperhidrosis were randomized (2:1:2) to GT (2.75% topical solution) or vehicle.
- Eligible patients:
  - ≥2 years of age
  - Gravimetrically-measured sweat production of ≥50 mg/5 min in each axilla
- ASDO item 2 (4 numerically rated scale 0 to 10)
- Hyperhidrosis Severity Scale (HDSS) ≥3
- Patients were excluded for history of a condition that could cause secondary hyperhidrosis; new or modified psychotherapeutic medications within 2 weeks, or treatment with medications having systemic anticholinergic activity, centrally acting alpha-2 adrenergic agonists, or beta-blockers within 4 weeks unless on a stable dose for ≥4 months.
- Exclusion criteria specified for prior concurrent treatments included the following:
  - Prior surgical procedure or treatment with a medical device for axillary hyperhidrosis
  - Treatment with botulinum toxin for axillary hyperhidrosis within 4 weeks
  - Treatment with tolbutamide for axillary hyperhidrosis within 1 year
  - Axillary use of nonprescription antiperspirants within 1 week or prescription antiperspirants within 2 weeks

**RESULTS**

**Disposition, Demographics, and Baseline Disease Characteristics**

- In ATMOS-1 and ATMOS-2, approximately 350 patients were randomized in each trial, and ≥95.0% completed the Children’s DLQI (CDLQI) and patients ≤16 completed the Children's DLQI (CDLQI).
- No significant differences were observed between the treatment groups in any of the demographic or baseline disease characteristics.

**Safety**

- In both trials, most TEAEs were mild or moderate, transitory, and infrequently led to discontinuation (ATMOS-1: 3.9% GT vs. 0.9% vehicle; ATMOS-2: 3.9% GT vs. 0% vehicle).
- In both trials, the majority of TEAEs in the GT group were related to anticholinergic activity, most frequently dry mouth: 19.8% GT vs. 3.5% vehicle (ATMOS-1): 29.3% vs. 7.6% vehicle (ATMOS-2).
- Two serious TEAEs were reported in GT-treated patients (moderate unilateral mydriasis ATMOS-1, considered by the Investigator to be related to treatment; moderate dehydration ATMOS-2, considered by the Investigator to be unrelated to treatment).

**CONCLUSIONS**

- The efficacy results observed in this post hoc analysis of prior treatment subgroups are consistent with the overall efficacy results of the ATMOS-1 and ATMOS-2 trials, indicating that patients received clinically meaningful benefit from GT, as measured by reduction in sweat production and improvement in perception of axillary hyperhidrosis.
- The investigators reported ≥75% were treatment naive (self-reported) at baseline in ATMOS-1 and ATMOS-2, suggesting that many patients may not seek or receive treatment for hyperhidrosis.

**References**

**Acknowledgements**

**Disclosures**

**Figure 1**

**Figure 2**

**Figure 3**

**Table 1**

**Table 2**

**Table 3**

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