# Abbreviated Drug Review

**Trade Name (generic)**

Noctiva™ (desmopressin acetate) nasal spray, 0.83 mcg and 1.66 mcg

**Indications**

- Desmopressin nasal spray is indicated for treating nocturia due to nocturnal polyuria in adults who awaken ≥2 times nightly to void. This formulation of desmopressin has not been studied in patients younger than 50 years of age.

**Dosage**

- Patients <65 years old who are not at increased risk for hyponatremia: One spray of 1.66 mcg in either nostril nightly about 30 minutes before bedtime
- Patients <65 years old at risk of hyponatremia or ≥65 years old: One spray of 0.83 mcg nightly (if needed, may step-up to 1.66 mcg spray after ≥7 days if serum sodium still normal)

**Background**

- Desmopressin, a synthetic analog of vasopressin and selective V2 receptor agonist, stimulates water re-absorption in the kidneys, which leads to reduced urine production.

**Efficacy**

The FDA approved desmopressin acetate nasal spray based on two 12-week randomized, double-blind, placebo-controlled, multi-center, phase 3 trials in adults 50 to 90 years old with nocturia. The mean age was 67 years. Included patients had a six-month history of an average of ≥2 nocturic episodes per night at baseline and ≥13 documented nocturia episodes over 6 nights during screening. Most patients were Caucasian (79%) males (57%). Patients with nocturia (n=1337) were randomized to receive either desmopressin 1.66 mcg or 0.83 mcg or placebo. Results of post-hoc subgroup analysis of patients with nocturia due to nocturnal polyuria for the two co-primary efficacy endpoints were as follows:[1]

| | Desmopressin 1.66 mcg | | Desmopressin 0.83 mcg | | Placebo | |
|---|---|---|---|---|---|---|
| Co-primary endpoints (from baseline to Week 12): | Trial 1 (n=199) | Trial 2 (n=143) | Trial 1 (n=209) | Trial 2 (n=145) | Trial 1 (n=204) | Trial 2 (n=145) |
| **Change in mean # of nocturic episodes/night** *(baseline mean #: 3.2-3.4)* | -1.5 | -1.5 | -1.5 | -1.4 | -1.2 | -1.1 |
| *difference from placebo (95% CI)* | -0.3 (-0.5 to -0.1) | -0.4 (-0.6 to -0.2) | -0.3 (-0.4 to -0.0) | -0.3 (-0.5 to -0.1) | -- | -- |
| **% patients with ≥50% reduction in mean # of nocturia episodes/night** | 47% | 49% | 35% | 41% | 27% | 29% |
| *difference from placebo (95% CI)* | 21% (12 to 30) | 20% (9 to 31) | 8% (**NS**) | 12% (1 to 23) | -- | -- |

**Safety**

**Black box warning:** Desmopressin can cause hyponatremia (life-threatening if severe) and is contraindicated in patients at risk for severe hyponatremia; confirm serum sodium is normal before starting or resuming desmopressin; measure serum sodium ≤7 days and about 1 month after therapy initiation or dose increases, and periodically thereafter and more often in patients ≥65 years old or at risk for hyponatremia; consider temporarily or permanently discontinuing desmopressin if hyponatremia occurs.
**Common adverse reactions:** Nasal discomfort, nasal congestion, nasopharyngitis, sneezing, hypertension/blood pressure increase, back pain, epistaxis, bronchitis, dizziness
**Contraindications:** Current/history of hyponatremia; polydipsia; primary nocturnal enuresis; use with loop diuretics or systemic or inhaled glucocorticoids; eGFR <50 mL/min/1.73 $m^2$; syndrome of inappropriate antidiuretic hormone secretion; use during illness that can cause fluid or electrolyte imbalance; NYHA Class II-IV CHF; uncontrolled hypertension
**Warnings and precautions:** Not recommended in patients at risk of increased intracranial pressure or history of urinary retention; monitor volume status in patients with NYHA Class I CHF; discontinue in patients with concurrent nasal conditions that may increase absorption, until resolved; monitor serum sodium more frequently when desmopressin is used with drugs that may cause water retention and increased risk for hyponatremia; moderate fluid intake in the evening and night-time to decrease the risk of hyponatremia
**Avoid use:** in pregnancy; in pediatric patients; with other intranasal drugs

**Evidence Gaps/Limitations**

No additional studies found to support evidence for use in the treatment of Oregon Health Plan (OHP) funded conditions or co-morbidities.

**Recommendation**

Restrict use for OHP-funded conditions through Prior Authorization.

**References**

1. Noctiva (desmopressin) [Prescribing Information]. Milford, PA: Serenity Pharmaceuticals, LLC, March 2017.
2. FDA Center for Drug Evaluation and Research. Summary Review. Application Number: 201656. Available at: https://www.accessdata.fda.gov/scripts/cder/daf/. Accessed 3/19/3017

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