Fast Acting, 5 years stable Intra-Nasal Powder-Spray Epinephrine for Anaphylaxis: Integrated Analysis of Two Clinical Trials

Poster 293

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Rational:

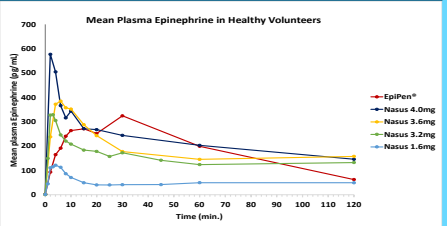
Epinephrine IM autoinjectors are underused. Alternative nasal powder spray of epinephrine (FMXIN002, Nasus Pharma) was compared to 0.3mg IM autoinjector in clinical studies evaluating PK/PD.

Methods:

The results of two PK/PD studies, conducted at the Hadassah Medical Center, Jerusalem, were integrated for dose optimization:

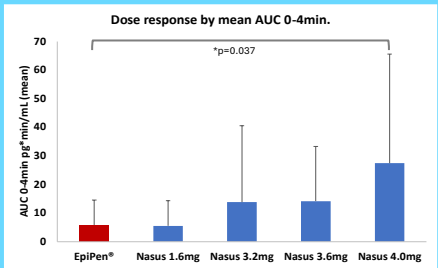
- **Study #1**(NCT04696822): 12 healthy adults with seasonal allergic rhinitis received EpiPen®; FMXIN002 (Nasus Pharma) 1.6mg and 3.2mg +/- a nasal allergenic challenge. The results without allergenic challenge were included in the integrated analysis.
- **Study #2**(NCT06205134): 12 healthy adults received EpiPen®; FMXIN002 3.6 mg and 4.0 mg.
- 5 Years Stability of FMXIN002 at **20°C±5°C** was analyzed.

Results:

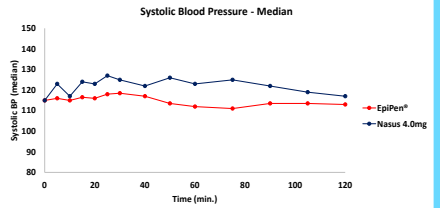


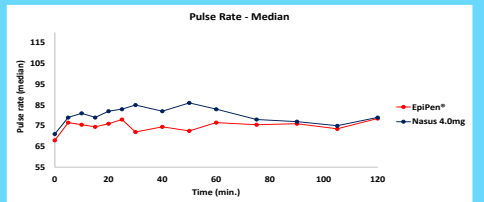
1. A clear dose-response was observed following the administration of nasal epinephrine.
2. The absorption of epinephrine following all doses (1.6 through 4.0mg) was remarkably faster than IM: Tmax median was 4-6min. versus 9min. respectively.
3. **Nasal spray 4.0mg was the fastest and most effective**: 6 minutes after drug administration, 91% of subjects achieved the commonly acceptable clinical threshold of 100 pg/ml plasma Epinephrine, while only 55% did with the autoinjector. Mean $AUC_{0\text{-}4min}$ was significantly higher (27.44 vs. 5.85; p=0.0377).
4. Plasma epinephrine was consistently higher after nasal allergen challenge. Median **Tmax** (at 3.2mg) was **2.5min.**
5. The 4.0mg dose was selected for further development.

1. **Pharmacodynamic response:** comparable to autoinjector.
2. **Safety**: FMXIM002 was well tolerated without significant adverse events.
3. **Stability:** FMXIM002 was stable for 5 years of storage at 20°C±5°C



Pharmacodynamics Results:





Stability Results:

Product	Shelf life	L-epi. active (%)	D-epi. impurity (%)
Nasus Intranasal Powder	5 years	100.0	0
Autoinjector (0.3 mg)	18 mon.	98.09	1.91
Autoinjector Jr (pediatric 0.15 mg)	19 mon.	96.23	3.77* Out of spec

Conclusions:

Nasal powder Epinephrine FMXIN002 4.0mg offers a fast acting, non-invasive, convenient and stable device, for life-threatening allergic reactions

Funded by Nasus Pharma . * tair@nasuspharma.com