



Introduction

- ❖ Up to half of patients with traumatic optic neuropathy (TON) develop **permanent vision loss**.
- ❖ The diagnosis and management of TON are challenging.
- ❖ Purpose: To **identify** craniofacial fractures associated with TON and investigate **the efficacy of steroid therapy** in TON treatment.

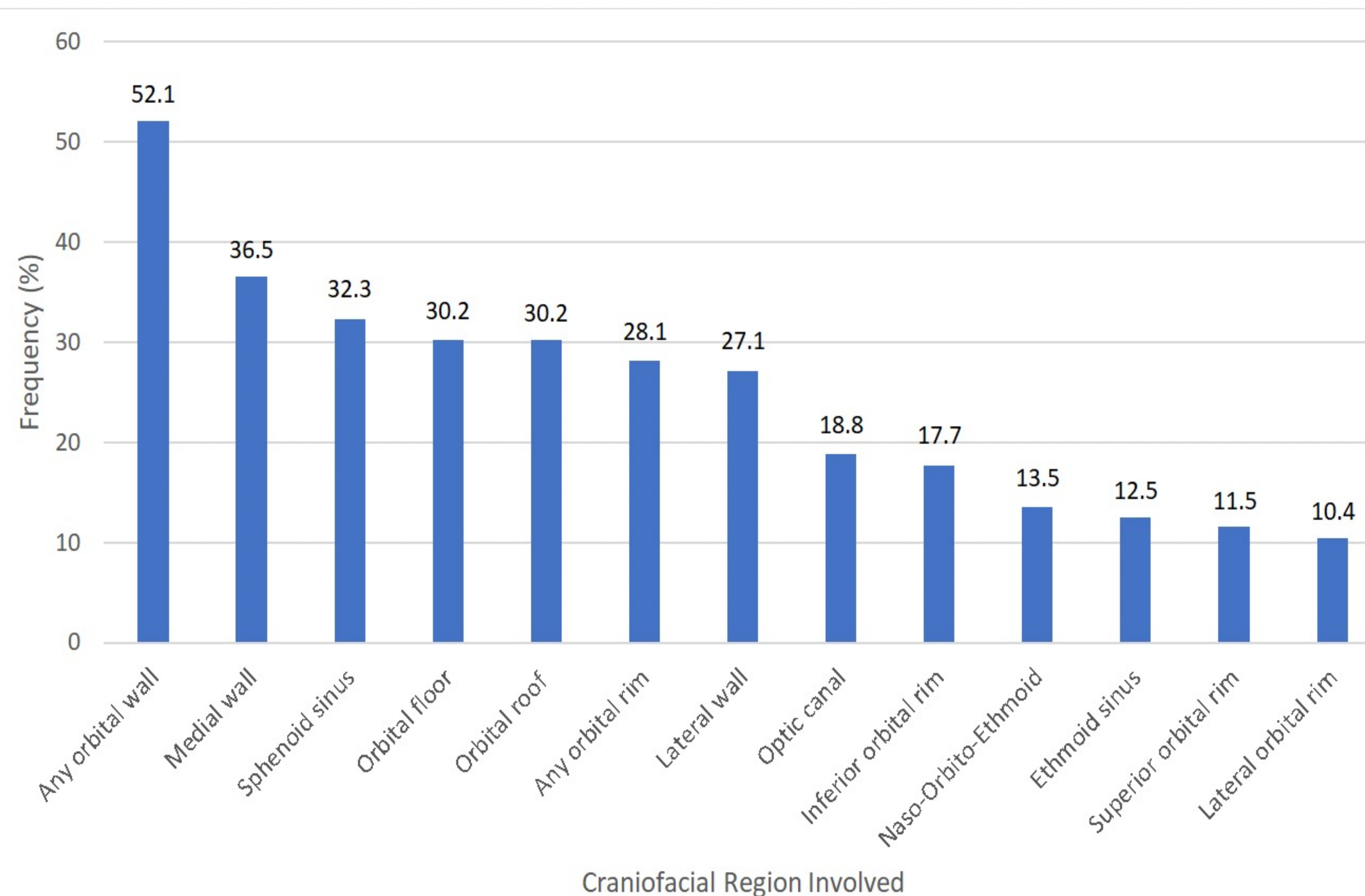
Methods

- ❖ Retrospective cohort from:
 - **2018-2022** to **determine craniofacial fractures associated with TON (A)**
 - **2013-2022** to **compare steroid therapy to observation (B)**
- ❖ Trauma patients with OFR at R Adams Cowley Shock Trauma Center
- ❖ Primary outcome: **visual acuity improvement** and **time to improvement**.
- ❖ Multivariate logistic and linear regressions were performed

Results

(A) Craniofacial Fracture Patterns

- ❖ **2374 patients** presented with acute facial fractures between 2018-2022
- ❖ **21** had TON (**0.9%**)
- ❖ Aside from orbital walls, facial fractures associated with TON:
 1. **Sphenoid sinus fractures**: associated with the greatest odds of TON (aOR [95% CI] **25** [9-68])
 2. LeFort III
 3. Naso-orbitoethmoid (NOE) fractures



(B) TON Management

- ❖ **86 TON patients (96 eyes)** analyzed between 2013 and 2022 for treatment outcomes
- ❖ Median (IQR) follow up was **9 (4-31) months**
- ❖ Most common steroid regimen was **IV methylprednisolone** ranging from 250-1000mg for 3 days max
- ❖ TON patients on **steroid therapy** were **significantly more likely** to have **improvement in visual acuity** compared with those managed with observation (8/13 [62%], 27/83 [33%], P<0.05).
- ❖ Steroids were associated with:
 - **6 times the odds of visual acuity improvement** compared with observation (aOR [95% CI] 5.54 [1.15-26.71], P=0.033).
 - **57-day earlier visual acuity improvement** compared with observation (B=-57.1, P=0.007).

Conclusion

- ❖ Patients with **sphenoid sinus fractures** should be evaluated for TON to initiate therapy early.
- ❖ Steroid therapy is associated with a more rapid improvement & better final visual acuity in TON patients.