**ABSTRACT**

**Objectives:** (1) Study positional changes in acoustic rhinometry (AR) (2) Analyze postural changes in patients with deviated nasal septum (DNS) and compare it to healthy participants.

**Methods:** Prospective comparative study, studying body posture effect on nasal patency. AR was performed under the following conditions before and after decongestion: (1) baseline seated, (2) right lateral decubitus, (3) left lateral decubitus. The minimal cross-sectional area (MCA) and nasal volume (NV) were used to analyze the results.

**Results:** Sixty-three participants have been studied using AR, and they were divided into 31 healthy participants and 32 participants with DNS. MCA measurements was smaller on the dependent side, but didn’t reach statistical significance (P value < .5). This difference disappeared after decongestion. A similar effect of posture was noted on NV measurements; however, the difference was statistically significant (P value < .001).

MCA measurements on the larger airway in volunteers with DNS before decongestion showed significant statistical difference of posture in the larger airway only.

**Conclusions:**
1. Body position is an important factor that can affect AR result.
2. NV is a more sensitive indicator in detecting mucosal swelling than MCA.
3. Inferior turbinate is more responsive to postural changes in the larger airway in patients with DNS.
4. Results can provide explanation to 2 clinical entities (paradoxical nasal obstruction and posture-induced nasal obstruction).

**INTRODUCTION**

- Nasal obstruction is a common complaint, seen in multiple sino-nasal disorders.
- Objective documentation of the type and degree of obstruction can aid the clinician in making accurate diagnosis and provide appropriate therapies.
- One of the objective documentation of nasal obstruction is Acoustic Rhinometry.
- There are several factors that can affect the nasal patency and nasal resistance.
- One of these factors is the postural changes.
- Few studies applied AR to investigate positional changes in nasal obstruction.

**OBJECTIVES**

- Study the positional changes in AR in (sitting, left lateral decubitus, and right lateral decubitus position in pre and post decongestant state).
- Analyze postural changes in patients with fixed anatomical obstruction due to deviated nasal septum separately and compare it to healthy participants.
- Report patient’s symptomatology with regard to nasal obstruction in different positions.

**MATERIAL AND METHOD**

- Prospective comparative study (body posture and the outcome on nasal patency).
- All adult patients with or without nasal obstruction (DNS) who volunteers to participate in the study were included.
- Participants were divided in to two groups:
  1. Healthy participants.
  2. Participants with deviated nasal septum.
- All participants responded to a detailed history questionnaire and underwent complete nasal examination.
- AR was performed in both nostrils under the following conditions before and after decongestion:
  1. Base line seated AR.
  2. (180 seconds) right lateral decubitus AR.
  3. (180 seconds) left lateral decubitus AR.
- Standardized technique was used.
- The minimal cross-sectional area (MCA) and nasal volume (NV) was used to analyze the results.
- The t-student test was used to compare the means of both nostrils.

**RESULTS**

- 63 participants (126 nasal cavities) has been studied using AR and divided to:
  1. 31 healthy participants (62 nasal cavities).
  2. 32 participants with DNS (64 nasal cavities).
- MCA measurements was smaller on the dependent side, but didn’t reach statistical significance.
- NV measurements resulted in more reduction on the dependent side and was statistically significant (P value < .001).
- MCA measurements on the larger airway in volunteers with DNS before decongestion showed significant statistical difference of posture in the larger airway only.

**CONCLUSIONS**

- AR is a safe, fast, and reproducible method in objective assessment of nasal volume.
- Body position is an important factor that can affect AR result.
- Body positional effects on AR is due to mucosal swelling and abolished by decongesting the nose.
- Both nasal volume and MCA are affected by body position.
- Nasal volume is more sensitive indicator in detecting mucosal swelling than MCA.
- Inferior turbinate is more responsive in the larger airway in patients with DNS to postural changes.
- These results can provide explanation to two clinical entities (Paradoxical nasal obstruction, posture-induced nasal obstruction).

**REFERENCES**