



THE ROLE OF DRUG-INDUCED SLEEP ENDOSCOPY (DISE) IN OSA PATIENTS

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ABSTRACT

**Background:** in recent days, drug-induced sleep endoscopy (DISE) has been used to identify the site of obstruction in patients with obstructive sleep apnea. **Objective:** In this study our main goal is to evaluate the role of drug-induced sleep endoscopy (DISE) in OSA patients. **Method:** this prospective case study was carried out at Asgar Ali Hospital from 2017-2021. Where a total of 100 patients who complained about snoring and difficulty in respiration during sleep were included as a sample population. During the study all patients undergone DISE technique. **Results:** Most of the patients belongs to 31-36 age group, 71% and 54% were male and 46% were female. 61% patients were overweight. Followed by 23% had hypertension, 15% had diabetes, 30% had hypothyroidism, 10% had smoking status. In addition followed by DISE techniques, snoring only seen in 12% cases where oxygen saturation was 95-97%. Followed by 3% had Central sleep apnea and 85% had complete obstruction. Besides this, 35% had Involuntary leg movement and 5% had severe restlessness. Moreover, majority site of obstruction notice in lateral wall, 30%. Followed by 15% were soft palate, 5% were tongue base and larynx. Besides that, in 20% cases, multiple site of obstruction were noticed where 15% had lateral wall and soft palate and 5% had lateral wall, soft palate and tongue base. **Conclusion:** DISE has an emerging role in identifying the site and characteristics of obstructions associated with OSA. The procedure provides important information about dynamic changes in the upper airways during sleep.

**KEYWORDS:** drug-induced sleep endoscopy (DISE), obstructive sleep apnea, snoring.

INTRODUCTION

The greatest diagnostic problem in patients with obstructive sleep apnea (OSA) is determining the position of the blockage in the upper airway during sleep, because the otorhinolaryngologic examination utilized to establish the likely site is conducted while the patient is awake.<sup>[1]</sup>

As a result, drug-induced sleep endoscopy (DISE) was added into the OSA diagnosis algorithm throughout the previous decade.<sup>[2-4]</sup>

The benefit of DISE is that collapse of the upper airways, which is not apparent when awake, may be viewed during sleep and therapy can be tailored based on the location and degree of blockage of the upper airway. This method would result in better treatment outcomes for OSA patients.

Continuous positive airway pressure (CPAP) breathing is now widely acknowledged as the gold standard therapy

for severe OSA. However, many patients are unable to tolerate CPAP due to laryngeal collapse, which is often identified only during DISE. As a result, DISE with CPAP can aid in determining the cause of CPAP intolerance in OSA patients.<sup>[5]</sup>

In this study our main goal is to evaluate the role of drug-induced sleep endoscopy (DISE) in OSA patients.

OBJECTIVE

General objective

- To assess the role of drug-induced sleep endoscopy (DISE) in OSA patients.

Specific objective

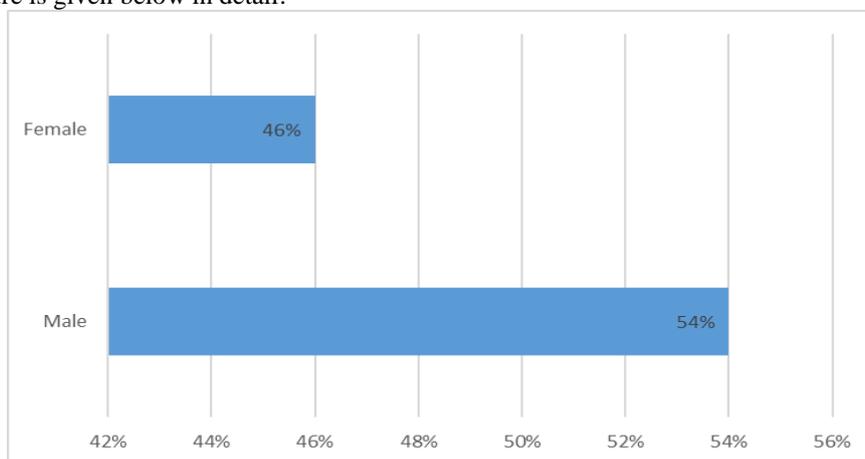
- To evaluate the site of obstruction.
- To identify the presence of apnea in patient with snoring

**METHODOLOGY**

This prospective case study was carried out at Asgar Ali Hospital from 2017-2021. Where a total of 100 patients who complained about snoring and difficulty in respiration during sleep were included as a sample population. During the study all patients undergone DISE technique. Besides that, during evaluation, Body mass index (BMI) was calculated. Otorhinolaryngologic examination focused on nasal, pharyngeal, and laryngeal pathologies (e.g., uvula enlargement, soft palate webbing, enlargement of the palatal tonsils, hypertrophy of the base of the tongue, visibility of the vallecula, and pathology of the epiglottis).

Statistical analysis was performed using IBM SPSS Statistics 26, and figures were constructed using GraphPad Prism 8. Continuous variables are expressed as mean ± standard deviation, and categorical variables are expressed as count (percentages).

The following figure is given below in detail.



**Figure 1: Gender distribution in the patients.**

In table-2 shows co-morbidity of the patients where 61% patients were overweight. Followed by 23% had hypertension, 15% had diabetes, 30% had hypothyroidism, 10% had smoking status. The following table is given below in detail.

**Table 2: Co-morbidity of the patients.**

Co-morbidity of the patients	%
Overweight	61%
Hypertension	23%
Diabetes	15%
Hypothyroidism	30%
Smoking status	10%

**RESULTS**

In table-1 shows age distribution of the patients where most of the patients belongs to 31-36 age group, 71%. Followed by 19% belong to 25-30 years and 10% belong to 37-45 years age group. The following table is given below in detail.

The following figure is given below in detail.

**Table 1: Age distribution of the patients.**

Age group	%
25-30	19%
31-36	71%
37-45	10%

In figure-1 shows gender distribution of the patients where out of 100 patients 54% were male and 46% were female.

In table-3 shows clinical characteristics of the patients after drug induced endoscopy where snoring only seen in 12% cases where oxygen saturation was 95-97%. Followed by 3% had Central sleep apnea and 85% had complete obstruction. Besides this, 35% had Involuntary leg movement and 5% had severe restlessness. The following table is given below in detail.

**Table 3: clinical characteristics of the patients after drug induced endoscopy.**

Clinical characteristics	%	Oxygen saturation
Snoring only	12%	95 to 97%
Central sleep apnea	3%	95%
Complete obstruction	85%	65%
Others health issues		
Involuntary leg movement	35%	
Severe restlessness	5%	

In table-4 shows site of obstruction. Here, obstruction sites were classified as soft palate, tongue base, lateral wall and larynx, where majority site of obstruction notice in lateral wall, 30%. Followed by 15% were soft palate, 5% were tongue base and larynx. Besides that, in 20% cases, multiple site of obstruction were noticed where 15% had lateral wall and soft palate and 5% had lateral wall, soft palate and tongue base. The following table is given below in detail.

**Table 4: Site of obstruction.**

Site of obstruction	%
Soft palate	15%
Larynx (epiglottis)	5%
Lateral wall	30%
Lateral wall and soft palate	15%
Tongue base	5%
Lateral wall, soft palate and tongue base	5%

## DISCUSSION

In our study, most of the patients belongs to 31-36 age group, 71%. Followed by 19% belong to 25-30 years and 10% belong to 37-45 years age group. Which is supported to other study where it was reported that in Bangladesh recently young adults were frequently suffer from this condition, where 50% belong to 30-35 years age group.<sup>[6]</sup>

Besides that, during our study 61% patients were overweight. Followed by 23% had hypertension, 15% had diabetes, 30% had hypothyroidism, 10% had smoking status. Which was quite similar to many study studies.<sup>[7-10]</sup>

Where it was reported that, there is an association present between obstructive sleep apnea with other clinical presentation. Such as obesity, Hypertension and hypothyroidism have individual role on OSA. 40% moderately obese patients suffer from OSA.

In addition, OSA strongly contributes to obesity related hypertension due to sympathetic overactivity, metabolic and neuroendocrine abnormalities are involved.<sup>[11]</sup>

In this study, DISE allows examination of the dynamic status of upper airways during sleep and determining the site and pattern of obstruction (anteroposterior, lateral, or concentric). Where it was found that, snoring only seen in 12% cases where oxygen saturation was 95-97%. Followed by 3% had Central sleep apnea and 85% had complete obstruction. Besides this, 35% had Involuntary leg movement and 5% had severe restlessness. Like our study another study reported similar type results where they said that, multilevel collapse was observed in 68.2% of patients; the most frequent combination was palatal and tongue base collapse (25.5% of patients). The prevalence of complete collapse, multilevel collapse, and hypopharyngeal collapse increased with increasing severity of OSA.<sup>[12]</sup>

In a other study, also observed multilevel collapse in 48 (78.8%) patients. They reported that, after DISE, the initial management plan changed in 41% of all patients. In addition, they reported that oropharyngeal obstruction was present in 96.0% and multiple obstructions were present in 50.0%. In the present study, majority site of obstruction notice in lateral wall, 30%.<sup>[13]</sup>

Followed by 15% were soft palate, 5% were tongue base and larynx. Besides that, in 20% cases, multiple site of obstruction was noticed where 15% had lateral wall and soft palate and 5% had lateral wall, soft palate and tongue base.

## CONCLUSION

DISE has an emerging role in identifying the site and characteristics of obstructions associated with OSA. The procedure provides important information about dynamic changes in the upper airways during sleep.

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