Effect of Unani Lifestyle Modulation on OROSA Patients using CPAP: An Observational Study

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Abstract—**Obesity-related obstructive sleep apnea (OROSA) causes recurrent airway obstruction, impairing sleep quality, cardiometabolic health, and daily functioning. Globally, OSA affects about 1 billion adults aged 30–69 years, including 29 million in India. Obesity is the major risk factor, with increasing body mass index (BMI) associated with greater OSA severity. In Unani medicine, obesity (Samān-e-Mufraṭ) caused by excess Balgham, and treatment focuses on correcting Asbāb-e-Sitta Ḍarūriyya. Aim: To evaluate Unani interventions in OROSA patient by measuring quality of life, obesity indices, daytime sleepiness, psychosocial function, and behavior through Asbāb-e-Sitta Ḍarūriyya-based lifestyle guidance. Methods: A 41-year-old female with OROSA presented with exertional dyspnea, daytime somnolence, and CPAP dependence. Over 60 days she received a polyherbal decoction (150 ml OD), Jawārish-e-Jālīnūs (2.5g OD), and Ḥamām-e-Bukhārī (steam bath twice weekly), plus guidance on diet, physical and psychic activity/rest, and sleep–wake regulation. BMI, Epworth Sleepiness Scale (ESS), and IWQOL-Lite-CT assessed on 0, 15, 30, 45, and 60 days. Results: BMI decreased from 46.8 to 40.3 kg/m² (13.9%); waist circumference 103 to 86 cm (16.5%); mid-thigh 68 to 58 cm (14.7%); mid-arm 39 to 35 cm (10.3%); hip 133 to 130 cm (2.3%); WHR 0.774 to 0.662 (14.5%). IWQOL-Lite-CT improved from 84 to 27 (67.9%). ESS fell from 17 to 8 (52.9%). Exertional and speech-induced breathlessness and vocal hoarseness improved. CPAP use reduced from nightly to twice weekly.Conclusion: Unani therapeutics combined with lifestyle regulation show substantial improvements in clinical and quality-of-life measures in this case.**

Index Terms—**Obesity-related obstructive sleep apnea, Samān-e-Mufraṭ, Unani medicine, quality of life**

I. Introduction

Obstructive sleep apnea (OSA) though being very common is a serious condition leading to fatal sleep disorder due to its repeated cycle of above airway collapse that results in intermittent hypoxia . It affects nearly 936 million people between the age 30 - 60 years [1]. In India OSA prevalence is 5.4% - 29 million.[2] obesity is one of the modifiable risk factor as pharyngeal adipose deposition reduces the airway luminal area especially in the supine position and also BMI directly correlates with Apnea- hypopnea index (AHI) severity [3] in unani medicine, *Samān-e-Mufraṭ* results from the humoral dominance of balgham (phlegm) and

impaired mizaj [4] consequently, obesity- related obstructive sleep apnea (OROSA) has been increasingly recognised [5]

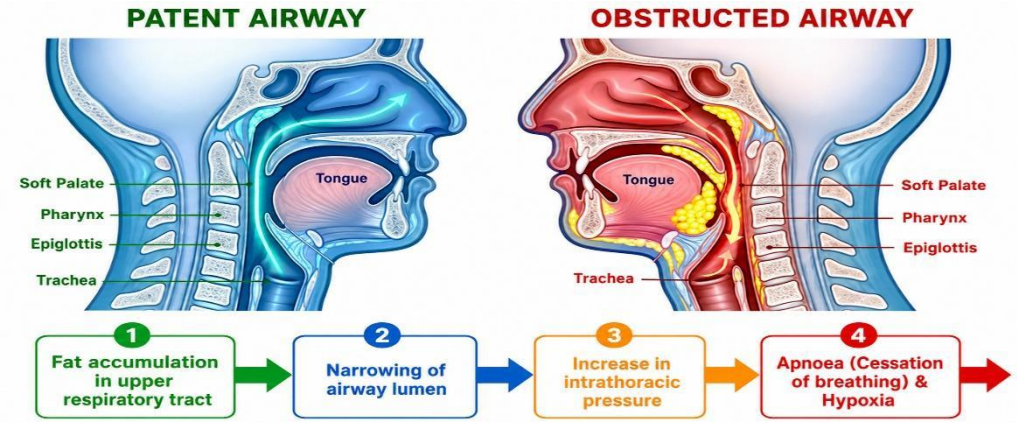

Figure 1. Comparison of Patent and Obstructed Upper Airways in Obstructive Sleep Apnea

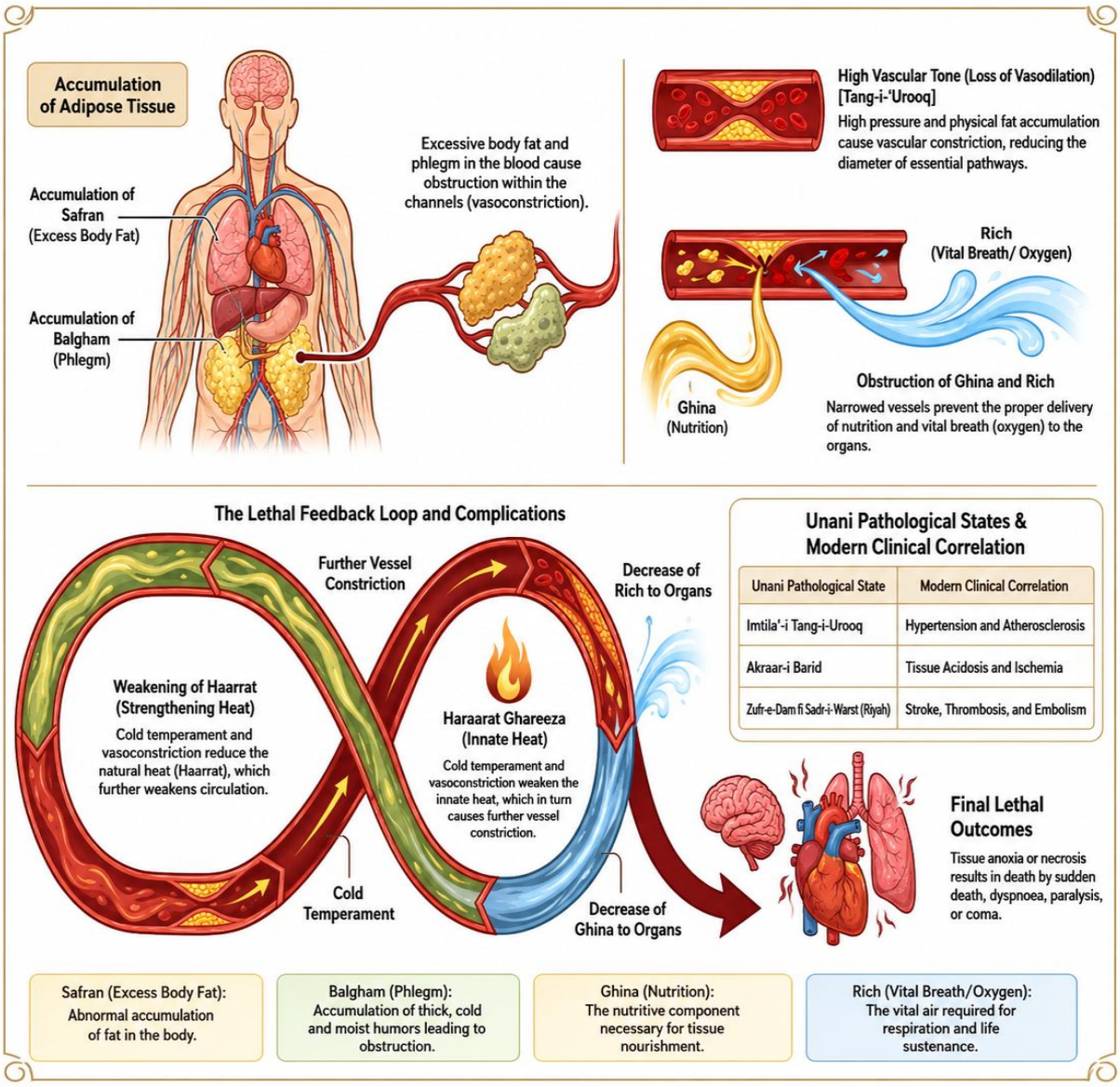

Figure 2. Pathophysiology of Samān-e-Mufraṭ (Obesity) According to Unani Medicine

II. Patient Information

A 41-year-old married female employed with a sedentary occupation presents with a two-year history of progressive exertional dyspnoea, nocturnal snoring, vocal hoarseness and speech induced breathlessness. She had been on CPAP therapy during the night for six months following polysomnographic confirmation of severe OSA (AHI 34 events/hr, minimum SpO_2 82%). with an history of diabetes mellitus (metformin 500mg twice daily), dyslipidaemia (atorvastatin 10mg) with class III obesity (BMI 46.8kg/m^2) she reported with social withdrawal due to breathlessness and change of voice during conversations existing medicines were continued throughout the study

III. Clinical Findings

On examination, BMI was 46.8 kg/m², waist circumference 103 cm, hip circumference 133 cm, WHR 0.774, neck circumference 42 cm, and resting SpO_2 96% (declining to 91% on mild exertion). Oropharyngeal assessment revealed Mallampati Class III airway with a crowded hypopharynx. Laboratory findings: HbA1c 7.2%, LDL 142 mg/dL, triglycerides 198 mg/dL. ESS score was 17 (severe excessive daytime sleepiness) and IWQOL-Lite-CT was 84, indicating severe weight-related quality of life impairment. From a Unani perspective, the patient exhibited features of *Samān-e-Mufraṭ*: balgham dominance, cold-moist temperament (*bārid wa raṭb Mizāj*), sluggish digestion (*ḍu'f-e-haḍm*), and excessive somnolence (*kathrat-e-naum*). on examination, BMI - 46.8kg/m^2 ,waist circumference 103 cm, hip circumference-133cm, WHR 0.774, neck circumference 42cm, resting SpO_2 96%. Orop

Table1: *Clinical Timeline of Patient Assessment and Intervention (Day 0 to Day 60)*

Timepoint	Events / Assessments
Day 0	**Baseline assessment - Diagnosis confirmed: BMI 46.8 kg/m², ESS 17, IWQOL-Lite-CT 84. Daily CPAP usage. Initiation of polyherbal decoction, Jawārish-e-Jālīnūs, Ḥamām-e-Bukhārī, and Asbāb-e-Sitta Ḍarūriyya counselling.**
Day 15	**First follow-up.- BMI 45.2 kg/m², ESS 14, IWQOL-Lite-CT 65. CPAP reduced to 5 nights/week. Moderate exertional dyspnea; patient reported improved sleep quality**
Day 30	**Second follow-up- BMI 43.7 kg/m², ESS 12, IWQOL-Lite-CT 50. CPAP reduced to 4 nights/week. Mild exertional dyspnea; vocal hoarseness mildly persisting**
Day 45	**Third follow-up.- BMI 42.0 kg/m², ESS 10, IWQOL-Lite-CT 38. CPAP reduced to 3 nights/week. Very mild dyspnea; marked improvement in social participation and mood.**

Day 60	**Final assessment.- BMI 40.3 kg/m², ESS 8 (normal range), IWQOL-Lite-CT 27. CPAP usage is reduced to once weekly. Exertional dyspnea, speech breathlessness, and vocal hoarseness all improved. Significant QOL gains**

IV. Therapeutic Intervention

Three unani pharmacotherapeutic agents administered for an interval of 60 days:(i) polyherbal decoction(150ml once daily, morning empty stomach)-containing terminalia chebula, zinger officinale and foeniculum vulgare has lipolytic & anti-phlegm (*tahlil)* activity;(ii) *Jawārish-e-Jālīnūs* (2.5g once daily, afternoon before food)- it has anti-inflammatory properties promoting *taqdiyat-e-haḍm,* (iii)*Ḥamām-e-Bukhārī (*steam bath twice weekly, 20 minutes per session)-it promotes fat catabolism, diaphoresis (*ta'rīq*),& pharyngeal muscle relaxation [6]

Figure 3: Patient On Hamam e Bukhari (Steam Therapy Procedure)

Figure 4: Patient On CPAP Application

Structured lifestyle modification was also implemented across four *Asbāb-e-Sitta Ḍarūriyya* domains: *makool wa mashroob* (calorie-restricted, low-glycemic diet; avoidance of phlegm-generating foods); *Ḥarkat wa Sukoon-e-Badanī* (excersice(-walking 20-45mins/day);*Ḥarkat wa Sukoon-e-Nafsānī* (stress reduction & social re-engaged counselling) &*Naum wa Yaqẓah* (regular sleep-wake schedule; daytime napping is discouraged).

Table 2: Ingredients of Unani Polyherbal Decoction

S.No.	NAME OF THE DRUG	SCIENTIFIC NAME	PART'S USED	ACTIVITY
1.	Post-e-Haleela Zard	*Terminalia chebula*	Rind	Hypolipidemic and Anti-Atherogenic
2.	Gul-e-Surkh	*Rosa damascena*	Flowers	Anti-hyperlipidemic effect
3.	Badiyan	*Foeniculum vulgarae*	Seeds	Anti-Obesity
4.	Tukhm-e-Kasni	*Cichorium intybus*	Seeds	Anti-Obesity And Anti-Hyperlipidemic.
5.	Gul-e-Gauzaban	*Borago officinalis*	Flowers	Antihyperlipidemic and Antiobesity
6.	Suranjan Shirin	*Colchium autumnale*	Corms	Antiobesity
7.	Barg-e-Sana	*Cassia angustifolia*	Leaves	Anti-hyperlipidemic
8.	Chobchini	*Smilax china*	Root	Antiobesity
9.	Charaita	*Swertia chiraita*	Whole plant	Antihyperlipidemic and Anti-hyperglycemic.
10.	Tukhm-e-Karfas	*Apium graveolens*	Seeds	Anti-obesity

Table 3: Ingredients of Jawārish-e-Jālīnūs-semisolid compound preparation

S.No.	Name of the drug	Scientific name	Parts Used	ACTIVITY
[1]	Sambul-ut-teeb {balchad}	*Nardostachys jatamansi*	Root	Hypolipidemic

2	**Ilaichi khurd {Kheer buwa}**	***Elettaria cardamomum***	**Fruit**	**Anti-hypercholesterolemic, Anti-hyperlipidemic**
3	**Taj {Saleekha}**	***Cinnamomum tamala***	**Bark**	**Hypolipidemic activity, Antihypercholesterolemic activity**
4	**Dar chini**	***Cinnamomum zeylanicum***	**Bark**	**Hypolipidemic activity, Anti-hypercholesterolemic activity**
5	**Khoolanjan**	***Alpinia galanga***	**Root**	**Hypolipidemic, Lipid-lowering, Anti-obesity**
6	**Qaranfil {Laung}**	***Syzygium aromaticum***	**Bud**	**Hypolipidemic, Antioxidative,**
7	**Saad koofi**	***Cyperus rotundus***	**Root**	**Hypolipidemic**
8	**Zanjabeel**	***Zingiber officinale***	**Rhizome**	**Hypolipidemic, Antihypercholesterolemic, Anti-obesity**
9	**Filfil-e-siyah**	***Piper nigrum***	**Fruit**	**Anti-hyperlipidemic, Anti-hypercholesterolemic, Anti-obesity**
10	**Filfil-e-daraaz**	***Piper longum***	**Fruit**	**Antihyperlipidemic, Hypolipidemic, Anti-inflammatory, Antioxidant**

11	**Qust shirin**	***Saussurea lappa***	**Root**	**Antioxidative,**
12	**O'od Balsan**	***Balsamodendron opobalsamum***	**Wood**	**Analgesic, Anti-inflammatory, Anti-hyperlipidemic Antioxidant (oxidative stress & DNA damage), Hypolipidemic**
13	**Asaroon**	***Asarum europaeum***	**Root**	**Hypolipidemic, Antioxidant, Anti-inflammatory, Analgesic,**
14	**Tukhm-e-Moorad**	***Myrtus communis***	**Fruit**	**Antithrombotic, Oxidative stress inhibitory activity**
15	**Charaita {Qasab-uz-zarirah} shirin**	***Swertia chirayita***	**Whole plant**	**Hypolipidemic**
16	**Za'fran asali**	***Crocus sativus***	**Stigma**	**Hypolipidemic, Antioxidant, Anti-obesity, Anti-dyslipidemic, Reduces oxidative stress**
17	**Mastagi Roomi**	***Pistacia lentiscus***	**Gum**	**Anti-hypercholesterolemic, Antiatheromatic (antiatherosclerotic), Hypolipidemic**

[18]	**Qand sufaid**	***Saccharum officinarum***	**Sugar**	**Antioxidant activity**
[19]	**Shehad khalis**	***Apis mellifera***	**Honey**	**Hypolipidemic activity Antioxidant activity**

V. OBSERVATION AND RESULT

Table 4: Patients Follow Up And Outcome Measure

Parameters	Day 0	Day 15	Day 30	Day 45	Day 60
BMI (kg/m)	46.8	452.	43.7	42.0	40.3
Waist Circumference (Wc)	103	99	95	90	86
Mid Thigh Circumference	68	65	63	61	58
Mid Arm Circumference	39	38	37	36	35
Hip Circumference	133	132	131	131	130
Waist Hip Ratio	0.774	0.746	0.718	0.690	0.662
Epworth Sleepiness Scale	17	14	12	10	8
IWQOL-Lite CT Score	84	64	50	38	27
CPAP Usage	Daily	5 Nights/Week	4 Nights/Week	3 Nights/Week	Once/Week

Exertional Dyspnea	**Severe**	**Moderate**	**Mild**	**Very Mild**	**Improved**
Speech Breathlessness	**Present**	**Reduced**	**Mild**	**Occasional**	**Improved**
Vocal Hoarseness	**Present**	**Slightly Reduced**	**Mild**	**Minimal**	**Improved**

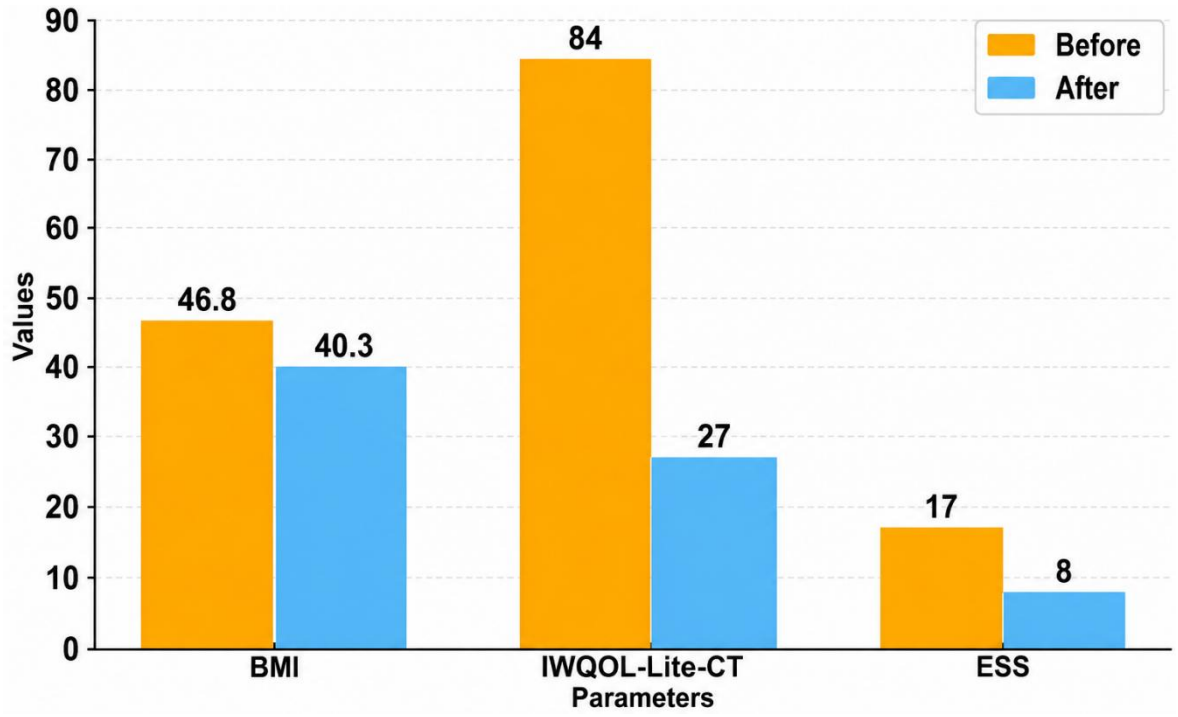

Figure 5: Statistical Comparison: Before Vs After Intervention

VI. Discussion

The progressive, consistent improvements across all outcome domains in this case are mechanistically explicable through three synergistic pathways. First, *Ḥamām-e-Bukhārī* promotes thermogenic fat mobilisation via sustained vasodilation and diaphoresis, activating heat shock proteins and augmenting mitochondrial lipolysis in adipose tissue.[7] Pharyngeal muscular relaxation from thermal stimulation may additionally reduce upper airway resistance. Second, the polyherbal decoction and *Jawārish-e-Jālīnūs* contribute phytochemical lipolytic and anti-inflammatory action: hydroxycitric acid inhibits de novo lipogenesis; gallic acid (*Terminalia chebula*) attenuates NF-κB-mediated systemic inflammation; and

gingerols with piperine confer additional thermogenic and antioxidant effects.[8] Third, *Asbāb-e-Sitta Ḍarūriyya* modulation created a sustained caloric deficit and addressed behavioural drivers of obesity.From the Unani perspective, the intervention corrected balgham humoral excess through *tahlīl* (dissolution) and *istifrāgh* (elimination), restored the patient's cold-moist *Mizāj* towards equilibrium, and improved *Quwwat-e-Haḍm* (digestive faculty) — collectively reversing the humoral substrate of *Samān-e-Mufraṭ*. The 13.9% BMI reduction aligns with published evidence that a 10% body weight reduction reduces AHI by approximately 26%.[9] The progressive decline in CPAP usage from nightly to once weekly constitutes indirect evidence of clinically meaningful AHI improvement. The 67.9% IWQOL-Lite-CT gain, ESS normalisation confirms improvements were not merely anthropometric but also translated to meaningful daily-life restoration. Key limitations include - absence of repeat polysomnography to objectively quantify AHI, inability to isolate individual therapeutic components and potential confounding from conventional pharmacotherapy. Independent replication of RCT with polysomnographic endpoints is essential.

VII. Conclusion

This case report demonstrates an structured 60 day unani lifestyle intervention comprising with polyherbal decoction, Jawārish-e-Jālīnūs, Ḥamām-e-Bukhārī and Asbāb-e-Sitta Ḍarūriyya corrections. which achieves clinically and statistically significant improvements in obese indices, daytime sleepiness, quality of life and CPAP dependency in a patient with OROSA .The 13.9% BMI reduction, 52.9% decrease in ESS score, and 67.9% improvement in IWQOL-Lite-CT score represents clinical improved outcome the convergence of modern mechanism understanding - lipolysis, anti-inflammation, upper airway deobstruction with classical unani concepts of humoral rebalancing through Asbāb-e-Sitta Ḍarūriyya and resolution of *Samān-e-Mufraṭ.*Unani interventions offer a root-cause-directed, patient-centred therapeutic option with a favourable safety profile.

VIII. Limitations

The findings here provide preliminary evidence supporting its feasibility and efficacy of unani lifestyle intervention as an adjuvant or primary therapeutic strategy in OROSA. Multi-centre randomised controlled

trials with polysomnographic endpoints, extended follow-up, and active comparator arms are urgently needed to establish the evidence base for this integrative approach in OSA management guidelines.

Patient Perspective: The medical beneficiary reported that - "I was exhausted all the time and stopped social gatherings as breathing during conversations was embarrassing . By Day 30 I was sleeping almost many nights without the machine , and by Day 60 I felt much better, energetic . This treatment really felt like solving the real problem rather than just the symptom."

Informed consent: The written informed consent was obtained from the medical beneficiary for clinical documentation and publication. This case report was conducted in accordance with declaration of Helsinki (2013)

Ethical Compliance Statement: The authors confirmed that patient provided written informed consent for the publication of the literature.

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Data Availability Statement: Upon reasonable request, the corresponding author will provide the data.

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