IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

The Efficacy And Safety Of Itrifal Zamani, A Compound Unani Medicine, In Treating Chronic Rhinosinusitis (Nazla E-Muzmin): A Pilot Study.

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Effect of Itrifal Zamani in Chronic Rhinosinusitis Cases.

Abstract

In many cases, chronic rhinosinusitis (CRS) can have a more significant influence on a patient's overall quality of life than other chronic conditions, especially when it comes to physical discomfort and social functioning. The primary symptoms, which include facial pain or pressure, nasal blockage, nasal discharge, and hyposmia or anosmia, have persisted for at least 12 weeks. Herbal remedies have long been utilized extensively in the therapeutic therapy of CRS because available synthetic medications have substantial negative effects. The aim of the current study is to assess the safety and effectiveness of Itrifal Zamani, a Unani compound medication, in treating patients with chronic rhinosinusitis (CRS). The information in this paper comes from a multicentric, open-level clinical investigation that was carried out at the Regional Research Institute of Unani Medicine in Aligarh, India, between 2018 and 2022 on 57 cases of CRS treated with Itrifal Zamani. One-way analysis of variance (ANOVA) viz. Dennett's test was used to statistically analyze the data, and p value of ≤ 0.05 was observed significant.

According to the study, the results of the Sino-Nasal Outcome Test-22 (SNOT-22) of CRS patients treated with Itrifal Zamani showed a significant improvement in a number of symptoms, including blowing nose, sneezing, running nose, coughing, post-nasal discharge, thick nasal discharge, ear fullness, dizziness, ear pain/pressure, facial pain/pressure, difficulty falling asleep, difficulty walking up at night, lack of good night sleep, walking up tired, fatigue during the day, decreased productivity, frustrated/restless/irritable, sadness, embarrassments, sense of taste/smell, blockage/congestion of nose, decreased concentration, and overall score. Comparisons of the Lund-Mackay score (LMS) before and after therapy shows a remarkable decrease, according to x-ray PNS results. Also, the study demonstrated that the medicine is safe and non-toxic. CRS patients of larger population of more research are recommended.

Keywords: Chronic Rhinosinusitis (CRS), Sino-nasal outcome test-22 (SNOT-22), post nasal discharge.

Introduction

An inflammation of the nasal cavity and paranasal sinuses that lasts longer than 12 weeks is known as chronic rhinosinusitis (CRS). Tissue remodeling, a breakdown of the sinuses' defense mechanisms, and the activation of various inflammatory clusters are all linked to CRS (1-2). A diminished sense of smell, sinus pain or pressure, rhinorrhea, and nasal congestion are typical signs of CRS. There have also been reports of fever, exhaustion, ear fullness, bad taste or odor, and sleep disturbance, all of which significantly lower a person's quality of life (3). Approximately 134 million Indians suffer with CRS, according to data from the National Institute of Allergy and Infectious Diseases (NIAID). Chronic sinusitis is thought to affect one in eight Indians (4). According to reports, the prevalence of sinusitis (146/1000 people) is higher than that of any other chronic illness and appears to be rising (5). Chronic rhinosinusitis (CRS) affects 5% to 12% of the general population and is a prevalent ailment that has a substantial global burden (6). According to estimates, the prevalence of CRS is between 11 and 12% worldwide and between 2.2 and 10.8% in Asia (7-8). Chronic rhinosinositis (CRS) is being treated with a number of contemporary medications, including, antibiotics, systemic corticosteroids and biological monoclonal antibody therapy (9-14). These medications greatly reduce the symptoms of chronic rhinosinositis, but they can have some very serious side effects.

The Unani medicine system has used a number of single medications, including Magnolia denudata Desr., Xanthium strumarium L., Angelica dahurica Var., Glycyrrhiza uralensis Fisch. ex DC, and Scutellaria baicalensis Georgi, Astragalus membranaceus Bunge, Platycodon grandiflorum (Jacq.) A.DC., Mentha arvensis L., Poria cocos (Schw.) Wolf, Atractylodes macrocephala Koidz, and Saururus chinensis (Lour.) Baill (15-17) and compound Unani medicines, such as Ustukhuddoos, (Lavandula stoechas L.), Asl-us-soos (Glycyrrhiza glabra L.), and Gul-e-banafsha (Viola odorata L.) and Sharbat Ustukhuddus (18-19).

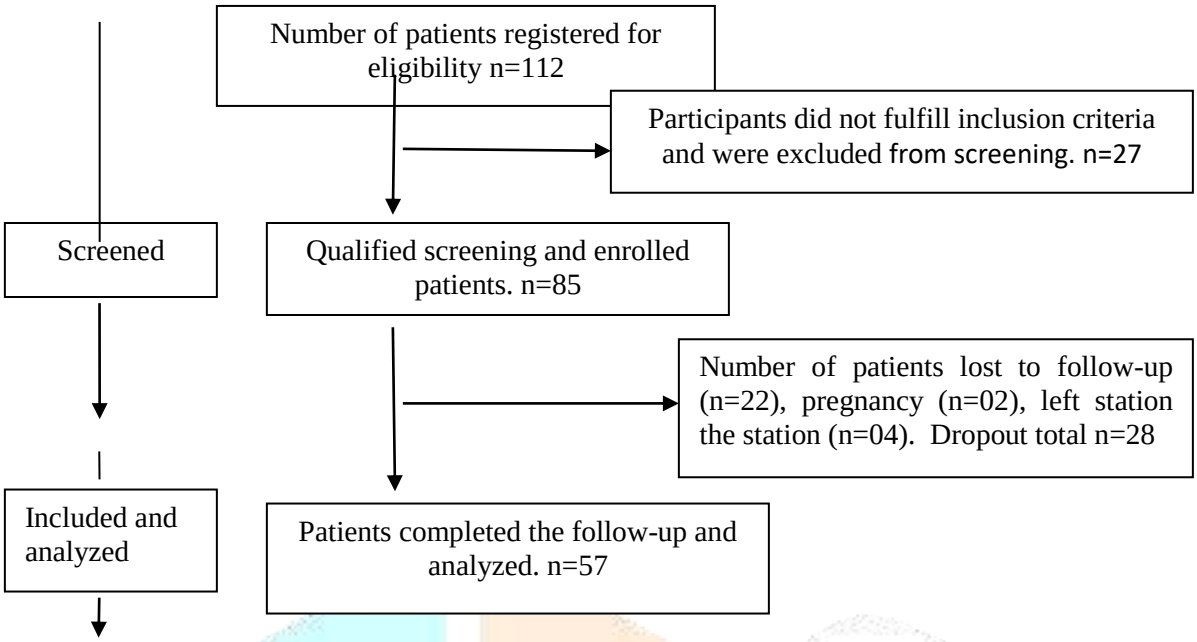
Herbal medications, such as Unani medicines, are currently receiving more attention because of their diverse role in treating chronic rhinosinositis, their lack of adverse effects, and their safety as therapeutic agents. Therefore, the aim of the current study is to assess the safety and effectiveness of the Unani chemical medication Itrifal Zamani through scientific validation.

Methodology

Study design

Multicentric, open level clinical study.The Central Council for Research in Unani Medicine in New Delhi provided the unani medicine Itrifal Zamani. The study was carried out at Regional Research Institute of Unani Medicine (RRIUM), Aligarh. Following the predetermined inclusive/exclusive criteria, fifty-seven individuals of either sex, ages 18 to 60, were chosen from the group of patients presenting to the outpatient department (OPD). There were 112 registered cases in total, 57 completed cases, and 55 dropout cases. Following a statistical analysis of the results, the efficacy and safety of the Unani compound medicine Itrifal Zamani were assessed using clinical, biochemical, and haematological markers.

Flow diagram of study participants



Ethical consideration

After receiving written informed consent, the study was carried out and all patients were included.
This study's findings are presented in this research publication, which has been authorized by the institutional ethical committee, vide (F. No. 5-11/2011-12/RRI/ALG/Tech/150 dated: 27-12-2017).

Drug, dose and mode of administration

The patients received 7.0 gm of the Unani compound medicine Itrifal Zamani semi solid orally once daily at bedtime following meals for six weeks.

Table-1: Constituents of Itrifal Zamani (NFUM Part-I) (20)

Name of ingredient Scientific name	Quantity
Post-e- Halela Zard (Terminalia Chebula Retz.)	50 g
Post-e- Halela kabli (Terminalia Chebula Retz.))	50 g
Halela Siyah (Terminalia Chebula Retz.)	50 g
Gul-e-Banafsha (Viola odorata Linn.)	50 g
Saqmonia (Convolvulus scammonia Linn.)	50 g
Turbud (Operculina turpethum (Linn.)	100 g
Kishneez Khushk (Coriander sativum Linn.)	100 g
Post-e-Balela (Terminalia bellirica (Gaertn.) Roxb.)	25 g
Amla (Emblica officinalis Gaertn)	25 g
Gul- e-Surkh (Rosa damascena Mill.)	25 g

Tabasheer (Bambusa arundinaceae Retz.)	25 g
Gul-e-Nilofer (Nymphaea alba Linn.)	25 g
Sandal Safaid (Santalum album Linn.)	15 g
Kateera (Tragacanth Gum)	15 g
Roghan Badaam (Prunus amygdalus Batsch.) OR Roghan Zard (Clarified butter)	120 g
Unnab (Ziziphus jujuba Gaertn.)	150 g
Sapistan (Cordia myxa Linn.)	100 g
Sheera-e- Murabba-e-Haleela (Herbal supplements)	1 Kg
Asl or Qand Safaid (Saccharum officinarum Linn.)	1 Kg
Gul e Banafsha (Viola odorata Linn.)	50 g

Subject Selection criteria

Patients were enrolled according to inclusion and exclusion criteria:

Inclusion criteria

Every subject satisfied the following requirements:
1. Patients in the 18–60 age range, regardless of gender.
2. Rhinosinusitis with a radiological diagnosis that lasts longer than 12 weeks.
3. SNOT Score > 11

Exclusion criteria

1. Rhinosinusitis /Sinusitis lasting less than 12 weeks.
2. Deviated Nasal septum.
3. Nasal polyps.
4. Local pathology include birth defects, radiation injury, facial injuries, mucocele, cysts, and antrochoanal polyps.
5. Diabetes mellitus as well as any other condition that needs long term treatment.
6. Ladies who are nursing or pregnant.

Assessment of temperament (mizaj)

A temperament (mizāj) examination was performed at baseline. The Ajnas-e-ashra's ten preset criteria were used to assess the patients' temperaments.

Follow-up evaluation

Following two, four, and six weeks of therapy, the patients were evaluated clinically, and the improvement in both subjective and objective symptoms was documented.

Clinical assessment:

Assessment of efficacy

1. Sino-nasal outcome test-22 (SNOT-22) reduction.
2. Decrease in symptoms and improvement of X-ray results.

Biochemical studies

Biochemical investigations were done following well established laboratory tests as under:
Serum glutamate pyruvate transaminase (SGPT, E.C. 2.6.1.2) and serum glutamate oxaloacetate transaminase (SGOT, E.C. 2.6.1.1.), serum alkaline phosphatase enzyme (S-ALP, EC. 3.1.3.1), blood urea, serum creatinine, serum total bilirubin, uric acid (21-26).

Haematological analysis

Haematological parameters were done (27). These included haemoglobin (Hb), erythrocyte sedimentation rate (ESR), total leucocytes counts (TLC), red blood corpuscles (RBC), platelet counts and differential leucocytes counts (DLC): polymorphs, lymphocytes and eosinophil counts.

Collection of blood serum

At each investigation, a vein was punctured to obtain blood samples. For different haematological measures, 1.0 ml of blood was treated with ethylene diamine tetra acetic acid (EDTA). For different biochemical parameters, 2.0–2.5 ml of blood was allowed to coagulate and the serum was separated by centrifugation. Haematological and biochemical investigations were conducted.

Statistical analysis

One-way analysis of variance (ANOVA) by Dunnett's test was used for statistical analysis of the data. When the P-value was less than 0.05, the values were treated significant.

Results

Demographic study:

The demographic study comprised 57 individuals with chronic rhinosinositis (CRS). Compared to male subjects 27 (47.37%) (Mean age 33.15 years), the incidence is higher for female subjects 30 (52.63%) (Mean age 31.17 years) than male subjects 27 (47.37%) (Mean age 33.15 years). A similar observation has been reported by earlier authors (28). Middle income group 34 (59.65%) showed greater incidences than lower income group 22 (38.59%) followed by higher income group 1 (1.75%) in the socioeconomic study. In the study on dietary habits, there were 48 cases of non-vegetarianism (84.21%) compared to 09 cases of vegetarianism (15.79%). The highest %age of participants with a BMI > 18.5 kg/m2 in chronic rhinosinositis was 30 (normal weight) (52.63%), 21 (overweight) (36.84%) (BMI > 25 kg/m2), followed by 04 (7.02%) (Obese).
Phlegmatic (balghami) patients had a higher incidence of 33 (57.09%) than sanguine (damvi) patients (16 (28.07%), bilious (safrawi) patients 06 (10.53%), followed by melancholic (saudawi) patients 2 (3.51%) (Table 2). Other investigations also came to similar conclusions (29).

Table-2: Demographic data showing the distribution of different variables in chronic rhinosinusitis patients.

Variables ↓ Group →	Sex	No. of patients, % Age, n=57	Mean Age (Years) ± S.D
1. Sex wise	Female	30 (52.63 %)	31.17 ± 9.29
	Male	27 (47.37 %)	33.15 ± 13.16
2. Age-wise (yrs)	i. 18-27	21 (36.84 %)	
	ii. 28-37	20 (35.09 %)	
	iii.38-47	11 (19.30 %)	
	iv. 48-60	06 (10.53 %)	
3. Socio-economic status (SES)	i. Lower income group (LEG)	22 (38.59 %)	
	ii. Middle income group (MEG)	34 (59.65 %)	
	iii. Higher income group (HEG)	01 (1.75%)	
4. Dietary habits	i. Non-vegetarian	48 (84.21%)	
	ii. Vegetarian	09 (15.79 %)	
5. Body mass index (BMI)	i. Under weight. BMI < 18.5 kg/m^2	02 (3.51%)	
	ii. Normal weight BMI > 18.5kg/m^2	30 (52.63%)	
	iii. Overweight BMI > 25 kg/m^2	21 (36.84%)	
	iv. Obese BMI > 30 kg/m^2	04 (7.02%)	
6. Type of Temperament	i. Phlegmatic (Balghami)	33 (57.90 %)	
	ii.Sanguine (Damvi)	16(28.07 %)	
	iii.Bilious (Safrawi)	06 (10.53 %)	
	iv. Melancholic (Saudawi)	02 (3.51%)	

Clinical study

Patients with chronic rhinosinositis showed improvements in a number of symptoms after taking 7.0 gm of the Unani medicine Itrifal Zamani in the form of semi-solid paste once daily at bedtime after meals for six weeks.

Assessment of efficacy

The following radiological and subjective variables have been employed to evaluate the efficacy of Itrifal

Zamani:

1. Subjective parameter:

The sino-nasal outcome test-22 (SNOT-22):

It serves as the standard assessment tool for individuals with chronic rhinosinusitis (CRS). The SNOT-22 is a quality of life-related, disease-specific indicator of sino-nasal function. A low score denotes a successful outcome.

i. Effect on blowing nose:

There was a significant decrease in scores at the second, fourth, and sixth weeks, respectively of 30.77% , 56.99% and 70.28% , as compared to baseline values and various treatment follow-ups over six weeks (table 3). Previous workers had reported a similar interpretation (30-33).

ii. Effect on sneezing:

There was a significant decrease in scores of 38.31%, 58.31% and 76.27% on the second, fourth, and sixth weeks, respectively. These were compared to baseline values and various treatment follow-ups for six weeks (table 3). Previous workers had reported a similar interpretation (30-33).

iii. Effect on running nose:

There was a significant decrease in scores of 46.90%, 68.61%, and 79.07% on the second, fourth, and sixth weeks, respectively. These were compared to baseline values and various treatment follow-ups for six weeks (table 3). Previous workers had reported a similar interpretation (30-33).

iv. Effect on coughing:

When compared to baseline and various follow-up treatment values for six weeks, a significant decrease in score was noted on the second, fourth, and sixth weeks, respectively, of 33.96%, 53.36%, and 67.16% (table 3). Previous workers had reported a similar interpretation (30-33).

v. Effect on post nasal discharge:

There was a significant decrease in scores of 44.33%, 66.67%, and 75.00% on the second, fourth, and sixth weeks, respectively. These were compared to baseline values and various treatment follow-ups for six weeks (table 3). Previous researchers had reported a similar interpretation (30-33).

vi. Effect on thick nasal discharge:

There was a significant decrease in scores of 43.06%, 69.86%, and 76.56 % on the second, fourth, and sixth weeks, respectively. These were contrasted with baseline values and various treatment follow-ups for six weeks (table 3). Previous workers had reported a similar interpretation(30-33).

vii. Effect on ear fullness:

Scores for the second, fourth, and sixth weeks, respectively, showed a significant decrease of 44.21%, 69.10%, and 81.12% as compared to baseline and various treatment follow-up values for six weeks (table 3). Previous workers had reported a similar interpretation (30-33).

viii. Effect on dizziness:

There was a significant decrease in scores of 45.96%, 67.17%, and 82.32 % on the second, fourth, and sixth weeks, respectively. These were compared to baseline values and various treatment follow-ups for six weeks (table 3). Previous workers had reported a similar interpretation (30-33).

ix. Effect on ear pain/pressure:

There was a marked decrease in scores of 46.46%, 61.06%, and 85.74% on the second, fourth, and sixth weeks, respectively. These were contrasted with baseline values and various treatment follow-ups for six weeks (table 3). Previous workers (30–33) had reported a similar interpretation (30-33).

x. Effect on facial pain/pressure:

There was a critical decrease in scores of 41.58 %, 58.42 %, and 78.22 % on the second, fourth, and sixth weeks, respectively. These were compared to baseline values and various treatment follow-ups for six weeks (table 3). Previous workers had reported a similar interpretation (30-33).

xi. Effect on difficulty in falling asleep:

There was a meaningful decrease in scores of 40.00 %, 62.67 %, and 82.67 % on the second, fourth, and sixth weeks, respectively. These were compared to baseline values and various treatment follow-ups for six weeks (table 3). Previous researchers had reported a similar interpretation (30-33).

xii. Effect on walking up at night:

There was an expressive decrease in scores of 22.97%, 60.77%, and 74.16% on the second, fourth, and sixth weeks, respectively. These were contrasted with baseline values and various treatment follow-ups for six weeks (table 3). Previous workers had reported a similar interpretation (30-33).

xiii. Effect on lack of goodnight sleep:

There was a considerable reduction in scores of 40.10 %, 58.49 %, and 69.34 % on the second, fourth, and sixth weeks, respectively. These were compared to baseline values and various treatment follow-ups for six weeks (table 3). Previous workers had reported a similar interpretation (30-33).

xiv. Effect on walking up tired:

There was an appreciable decrease in scores of 45.39 %, 58.85 %, and 76.92 % on the second, fourth, and sixth weeks, respectively. These were compared to baseline values and various treatment follow-ups for six weeks (table 3). Previous workers had reported a similar interpretation (30-33).

xv. Effect on fatigue during day:

There was a remarkable decrease in scores of 16.36%, 65.46 % , and 70.55 % on the second, fourth, and sixth weeks, respectively. These were contrasted with baseline values and various treatment follow-ups for six weeks (table 3). Previous workers had reported a similar interpretation (30-33).

xvi. Effect on reduced productivity:

There was an outstanding decrease in scores of 37.50%, 63.39%, and 73.21% on the second, fourth, and sixth weeks, respectively. These were contrasted with baseline values and various treatment follow-ups for six weeks (table 3). Previous workers had reported a similar interpretation (30-33).

xvii. Effect on frustrated/restless/irritable:

There was a crucial decrease in scores of 37.56% , 57.07% , and 80.49% on the second, fourth, and sixth weeks, respectively. These were contrasted with baseline values and various treatment follow-ups for six weeks (table 3). Previous workers had reported a similar interpretation (30-33).

xviii. Effect on sadness:

Scores on the second, fourth, and sixth weeks, respectively, showed a significant decrease of 36.20%, 64.42% , and 76.07% as compared to baseline and various follow-ups of therapy for six weeks (table 3). Previous workers had reported a similar interpretation (30-33).

xix. Effect on embarrasses:

At the second, fourth, and sixth weeks, respectively, there was a significant decrease in scores of 35.09 % , 67.54% , and 81.58% , which were compared to baseline values and various follow-ups of treatment for six weeks (table 3). Previous workers had reported a similar interpretation (30-33).

xx. Effect on sense of taste/smell:

There was a remarkable decrease in scores of 46.03%, 56.35% and 74.03% on the second, fourth, and sixth weeks, respectively. These were contrasted with baseline values and various treatment follow-ups for six weeks (table 3). Previous workers (30–33) had reported a similar interpretation (30-33).

xxi. Effect on blockage/congestion of nose:

There was a noteworthy decrease in scores of 39.53% , 62.45% , and 76.29% on the second, fourth, and sixth weeks, respectively. These were contrasted with baseline values and various treatment follow-ups for six weeks (table 3). Previous workers had reported a similar interpretation (30-33).

xxii. Effect on reduced concentration:

There was a crucial decrease in scores of 33.33%, 52.02%, and 75.25% on the second, fourth, and sixth weeks, respectively. These were contrasted with baseline values and various treatment follow-ups for six weeks (table 3). Previous workers had reported a similar interpretation (30-33).

xxiii. Effect on Total score:

When compared to baseline and various follow-up treatment values for six weeks, a significant decrease in score of
39.49% and 62.75% was noted on the second and fourth weeks, respectively (table 3). Previous workers had reported a similar interpretation (30-33).

Table-3: Effect of Unani drug Itrifal Zamani on symptoms in chronic rhinosinusitis patients.
[*P<0.05& **P<0.01 are significant, ***P < 0.001 is highly significant].

Symptom Group → ↓	Baseline (1st-day)	1st F-up (2nd-week)	2nd F-up (4th-week)	Post-treatment (6th-week)
Blowing nose	2.86 ± 1.51	1.98 ± 1.43***	1.23 ± 1.04***	0.75 ± 0.85***
Sneezing	2.95 ± 1.44	1.82 ± 1.28***	1.23 ± 0.98***	0.70 ± 0.84***
Running nose	2.58±1.50	1.37±1.41***	0.81±0.93***	0.54±0.76***
Cough	2.68±1.64	1.77±1.40***	1.25±1.04***	0.88±0.76***
Post nasal discharge	3.00±1.39	1.67±1.31***	1.00±0.94***	0.75±0.91***
Thick nasal discharge	2.09±1.55	1.19±1.29***	0.63±0.70***	0.49±0.85***
Ear fullness	2.33±1.76	1.30±1.22***	0.72±0.86***	0.44±0.66***
Dizziness	1.98±1.60	1.07±1.13***	0.65±0.83***	0.35±0.64***
Ear pain/ pressure	2.26±1.69	1.21±1.35***	0.88±1.02***	0.32±0.57***
Facial pain/pressure	2.02±1.63	1.18±1.35***	0.84±1.05***	0.44±0.66***
Difficulty in falling asleep	2.25±1.67	1.35±1.26***	0.84±1.03***	0.39±0.59***
Walking up at night	2.09±1.62	1.61±3.05***	0.82±0.98***	0.54±0.71***
Lack of goodnight sleep	2.12±1.65	1.27±1.45***	0.88±1.04***	0.65±0.69***
Walking up tired	2.60±1.55	1.42±1.25***	1.07±1.05***	0.60±0.86***
Fatigue during day	2.75±1.57	2.30±4.36***	0.95±0.95***	0.81±0.91***
Reduced productivity	2.24±1.77	1.40±1.44***	0.82±0.91***	0.60±0.70***
Frustrated/restless/Irritable	2.05±1.60	1.28±1.29***	0.88±0.93***	0.40±0.53***

Sad	1.63±1.54	1.04±1.16***	0.58±0.68***	0.39±0.62***
Embarrassed	1.14±1.59	0.74±1.09***	0.37±0.62***	0.21±0.49***
Sense of taste /Smell	1.81±1.82	0.96±1.18***	0.79±0.90***	0.47±0.66***
Blockage/congestion of nose	2.53±2.05	1.53±1.45***	0.95±0.91***	0.60±0.75***
Reduced concentration	1.98±1.79	1.32±1.17***	0.95±1.01***	0.49±0.66***
Total Score (n=57) (SNOT-22)	49.58±27.56	30.00±22.08***	18.47±14.11***	49.58±27.56***

2. Radiological parameter:

When comparing the Lund-Mackay score (LMS) between the pre-treatment and post-treatment values, in this study the x-ray PNS results show a remarkable decrease of 82.56% (Table 4 and Fig.1, 2). Complete relief (no opacification) 44 (77.19%) (44 out of 57 patients), partial relief (partial sinus opacification) 05 (8.77%) (05 out of 57 cases), and no relief (complete sinus opacification) 08 (14.04%) (08 out of 57 cases), were observed. (Table 5 and Fig. 3). Previous workers had reported a similar interpretation (34-36).

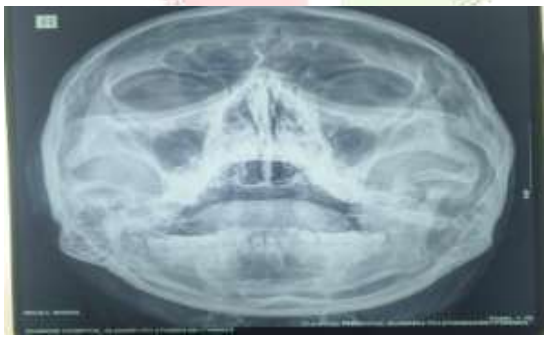
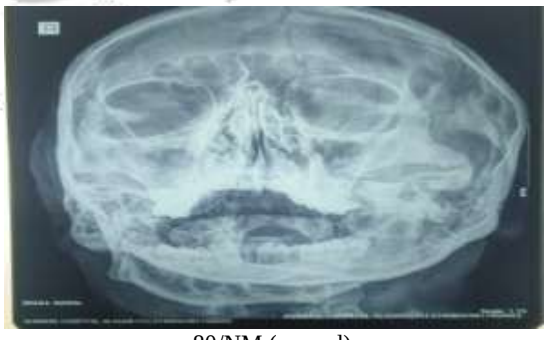
PRE-TREATMENT(ZERO DAY)	POST-TREATMENT (84th DAYS)
 81/NM (completely obstructed)	 81/NM (normal)
 78/NM (completely obstructed)	 78/NM (normal)
 79/NM (completely obstructed)	 79/NM (normal)
 80/NM (completely obstructed)	 80/NM (normal)

Fig:-01Comparison of radiological appearance between Base line and Post-treatment of chronic rhinosinusitis patients.
According to Lund-Mackay score (0=normal; 1=partially obstructed; 2=completely obstructed)

*X ray report in pretreatment patients, there are mild/ minimal/ faint haziness had seen in bilateral maxillary sinuses, while the sinuses appear clear and nasal septum is in midline had been observed in all patients of post-treatment.

Table 4 Effect of Unani drug Itrifal Zamani on X ray findings in chronic rhinosinusitis patients

[***P<0.001 is highly significant]

X-ray (PNS) (n=57)	Baseline (1^{st}-day)	Post-treatment (6^{th}-week)
	1.72±0.49	0.30±0.60***

Lund-Mackay Score (LMS): 1. Normal=0; 2. partially obstructed=1; 3. completely obstructed=2

Table 5 Effect of Unani compound drug Itrifal Zamani on improvement of x ray findings in chronic rhinosinusitis patients.

X-ray findings (PNS)	Number of subjects & % age (n=57)
Complete relief. LMS, Normal = 0	44 (77.19%)
Partial relief LMS, Partially obstructed = 1	05 (8.77%)
No relief, LMS, completely obstructed = 2	08 (14.04%)

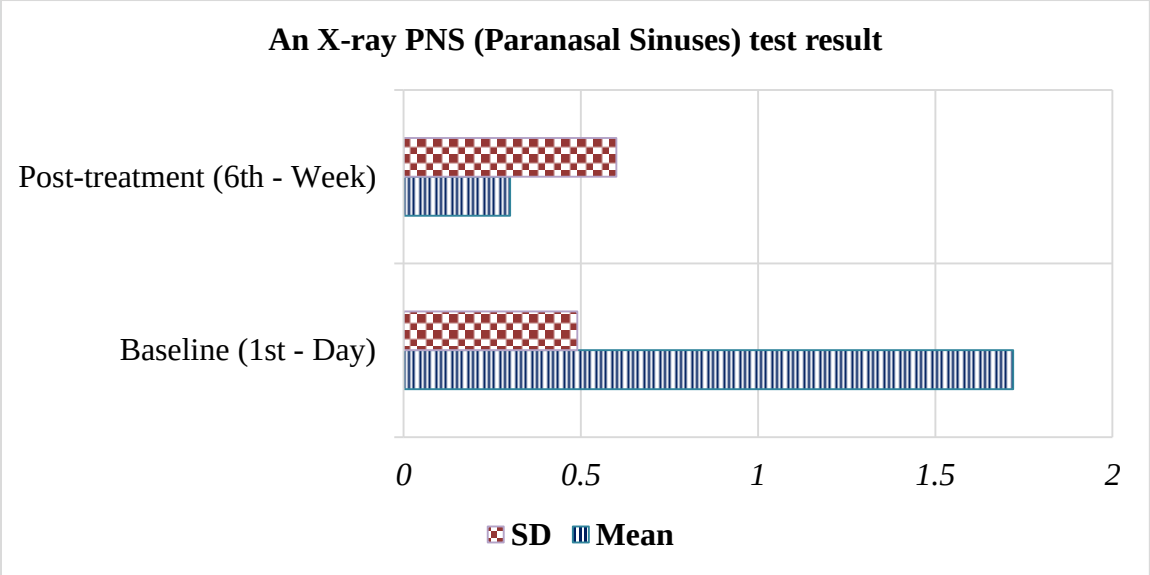


Fig-2 Effect of Unani compound drugs Itrifal Zamani on improvement of x ray findings in chronic rhinosinusitis patients.

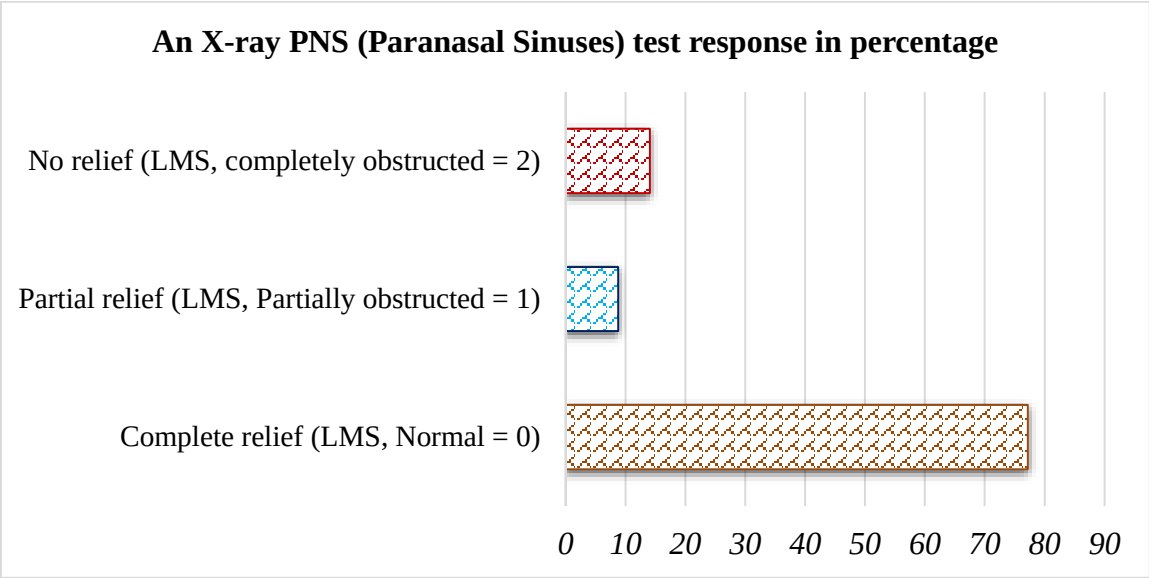


Fig-3 Effect of Unani compound drug Itrifal Zamani on improvement of x ray findings on the basis of Lund-Mackay Score (LMS) in chronic rhinosinusitis patients.

Assessment of safety

Based on biochemical investigations, the following conclusions about the test drug's safety have been made:

i. Liver function tests and kidney function tests

There had been insignificant changes in either the kidney or liver function tests. Thus, it can be concluded that there was no adverse or negative reaction brought on by the test medication. As a result, the medication is safe (table 6). Previous workers have reported a similar interpretation (37).

Haematological studies

There have been negligible changes in the levels of Hb, RBC, TLC, ESR, or DLC. These were contrasted with baseline and various treatment follow-up values (table 7). Previous workers had reported a similar interpretation (38).

Table-6: Effect of Unani drug Itrifal zamani in the levels of SGPT, SGOT, alkaline phosphatase, bilirubin, blood urea, serum creatinine and uric acid in chronic rhinosinusitis patients.

Parameter → Group ↓	SGOT (IU/L)	SGPT (IU/L)	Alkaline Phosphatase (IU/L)	Bilirubin (mg %)	Blood Urea (mg %)	Creatinine (mg %)	Uric Acid (mg %)
Baseline (1st -day)	20.69 ±11.61	24.22 ±18.69	73.58 ±23.35	0.77 ±0.24	21.92 ±8.24	0.93 ±0.19	4.72 ±1.24
Post-treatment (6th -week)	20.56 ±11.05	23.29 ±17.32	73.40 ±22.46	0.73 ±0.21	20.35 ±6.30	0.94 ±0.17	4.44 ±1.21

Table-7 Effect of Unani drug Itrifal zamani in the levels of haemoglobin, R.B.C. count, total leucocyte counts (TLC), platelet counts, absolute eosinophil counts (AEC), erythrocyte sedimentation rate (ESR), polymorphs, lymphocytes and eosinophils count in chronic rhinosinusitis patients.

Parameter → Group ↓	Haemoglobin (gm %)	RBC (10^6/mm^3)	TLC (10^3/mm^3)	Platelet Counts	Absolute Eosinophil Counts	E.S.R. (mm /hr)		Differential leucocyte counts (DLC)		
						1 Hr	2 Hr	Polymorphs (%)	Lymphocytes (%)	Eosinophils (%)
Baseline (1st -day)	12.57 ±1.79	4.40 ±0.58	5.63 ±1.29	1.74 ±0.52	197.64 ±114.74	30.00 ±13.85	42.00 ±11.84	68.00 ±0.94	26.00 ±0.92	6.0 ±0.22
Post-reatment (6th-week)	12.39 ±1.88	4.32 ±0.58	5.65 ±1.55	1.87 ±0.52	174.63 ±107.53	32.00 ±15.23	43.00 ±13.47	69.00 ±0.94	25.00 ±0.97	6.0 ±0.21

Discussion:

The purpose of this 2018–2021 study is to examine the effectiveness of the Unani compound medication Itrifal Zamani and confirm both its safety and Potency in treating patients with chronic rhinosinusitis.
The conclusions are based on the clinical, biochemical, and haematological data of 129 registered patients with chronic rhinosinusitis which were evaluated; 57 of those patients successfully finished the studies. The test medicine, Itrifal Zamani, has been determined to be safe, effective, and non-toxic for human usage.
As previously mentioned, there is a detectable and remarkable improvement in each of the subjective parameters (i-xxiii). The safety parameters SGOT, SGPT, alkaline phosphatase, urea, and creatinine are essentially absent for the two drugs under investigated, according to Itrifal Zamani's study on the efficaciousness of several other Unani medicines in the treatment of chronic rhinosinusitis.
These include Unani formulations that include "Shoniz (Nigella sativa L.), Zaranbad (Curcuma zedoaria (Christm.) Roscoe), Bisbasa (Myristica fragrans Houtt.), Asal (honey) (39)" and polyherbal Unani formulations (habb-e-shifa orally and roghan banafsha) (40) locally. Gul-e-banafsha (Viola odorata L.), Ustukhuddoos, (Lavandula stoechas L.), Asl-us-soos (Glycyrrhiza glabra Linn.), and misri are all included in the Unani drug formulation (41). Group B received 6 g BD along with steam inhalation of kolanji (Nigella sativa L.) and honey in the Unani formulation of Katan (Linum usitatissimum L.) (42). The majority of studies do not evaluate drug efficacy
using radiological criteria in addition to safety parameters (Table 8).

Our test medicine, Itrifal Zamani, satisfies all safety, toxicity, and efficacy criteria and has demonstrated early, unique, and promising results in the treatment of chronic rhinosinusitis. The results of earlier investigations on the aforementioned Unani medicines are likewise corroborated by our research. Nevertheless, we advise more research on a larger population to better understand the safety and efficacy of this test medicine before it is employed in broader medical usage.

Table-8 Showing Unani medicines previously studied in the treatment of chronic rhinosinusitis, providing abstract information on safety, toxicity, adverse side-effects and efficacy etc. on scientific lines (2018-2021)

S. No	Name of Unani drugs investigated	Parameters	
		Safety Biochemical & Haematological	Subjective parameters for efficacy
1.	The Unani formulation contains Shoniz (Nigella sativa), Zaranbad (Curcuma zedoaria), Bisbasa (Myristica fragrans), and Asal (honey) With a control group of Levocetrizine (39).	*Haematological and safety parameters were not performed.	Rhinorrhea, sneezing, facial pain, nasal blockage, post-nasal discharge, and thick nasal discharge were all reported to be lowered by the Unani formulation. When compared to the baseline, the test and control groups' post-treatment snot scores decreased to 2.1 and 2.0, respectively.*X-ray PNS investigation is absent.
2.	Habb-e-shifa orally a polyherbal Unani formulations and roghan banafsha locally (40).	* No haematological tests or safety parameters had been carried out.	It was shown that the Unani formulations were successful in reducing the haziness of the X-ray PNS and improved the overall intensity of symptoms as measured by VAS after 45 days of treatment.
3.	The formulation of the test drug includes misri,Gul-e-banafsha (Viola odorata), ustukhuddoos (Lavandula stoechas), and asl-us-soos (Glycyrrhiza glabra) (41).	Every safety parameter was within normal limits.	Subjective and objective parameters (VAS, SNOT-22 scores, and X-ray PNS) were used to evaluate each patient.
4.	Group A received an oral Unani formulation of Katan (Linum usitatissimum), Filfil Siyah (Piper nigrum), and honey along with 6 g BD with steam and kolanji (Nigella sativa) inhalation and Group B received a tablet of Alaspan 1 BD with karvol plus inhalation (42).	Every safety parameter was carried out.	The Unani formulation with Katan (Linum usitatissimum Linn.), Filfil Siyah (Piper nigrum Linn.), and honey with Inkebab (medicated inhalation) of kalonji (Nigella sativa Linn.) is safe and has no negative side effects and significantly lowering the ACQ-22 scores. Therefore, this Unani formulation is a potential treatment regimen for patients with chronic rhinosinusitis.

*Parameters not studied.

Conclusion

The findings indicate that Itrifal Zamani is a promising Unani test medicine that significantly reduced the symptoms of chronic rhinosinusitis patients as measured by the Lund-Mackay score (LMS) and the sino-nasal outcome test-22 (SNOT-22) score. According to the study, the test medicine is non-toxic and safe for long-term usage. Therefore, it is advised that extensive clinical trials be carried out on a vast population in order to create this Unani test medicine as a successful treatment for this illness that may be used globally.

Acknowledgement

For financial assistance, the authors are grateful to the Central Council for Research in Unani Medicine (CCRUM), located in New Delhi. We further acknowledge the assistance with the investigations provided by Mr. Tariq Ali Beg and Mr. Javed Akhtar, Lab Technicians and Mr. Shish Mohammad, Lab Attendant of the Biochemistry and Pathology Laboratory RRIUM, Aligarh.

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