

**AN EXPLORATORY STUDY ON EFFICACY OF JOSHANDA ZEEQUNNAFAS AND
HABBE HINDI ZEEQI IN TREATMENT OF ZEEQUNNAFAS (BRONCHIAL ASTHMA).
A RESEARCH ARTICLE****Dr. Juned Ahmad^{1*}, Dr. Mahboob Alam², Dr. Mohammad Danish³, Dr. Shaikh Mudassar Shaikh Altaf
Maniyar⁴ and Prof. Aaqib Jaweed⁵**¹Associate Professor, Dept. of Amraz-e-Ain, Uzn, Anf, Halaq wa Asnan Inamdar Unani Medical College & Hospital, Kalaburagi, Karnataka.²Professor & HOD, Dept. of Moalajat (Medicine), Inamdar Unani Medical College & Hospital, Kalaburagi, Karnataka.³Assistant Professor, Dept. of Moalajat (Medicine), Inamdar Unani Medical College & Hospital, Kalaburagi, Karnataka.⁴Lecturer, Dept. of Moalijat (Medicine), Iqra Unani medical College & Hospital, Jalgaon.⁵Assistant Professor, Dept. of Pharmacology, Vastanvi college of Pharmacy, Kunjkhedra. Sambhajinagar.***Corresponding Author: Dr. Juned Ahmad**

Associate Professor, Dept. of Amraz-e-Ain, Uzn, Anf, Halaq wa Asnan Inamdar Unani Medical College & Hospital, Kalaburagi, Karnataka.

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ABSTRACT

The Joshanda Zeequnnafas & Habb-e-Hindi Zeeqi is a very common preparation of unani system of medicine that used management of Zeequn Nafas (Bronchial asthma). It contain Beesh, Post-eBekh Madar, and Aab-e-Adrak that act as Muhallil (Anti-inflammatory), Mukhaddir (Anesthetics), Daf-i-Tasannuj (Antispasmodics), Mushil (Purgative), Munaffis-i-Balgham (Expectorant), Mukhrij-i-Balgham (Phlegmagogue), and Hadim (Digestive). The information was also aggregated from Unani books published in different languages, viz. Urdu, English, and Persian. In unani medicine Habb-e-Hindi Zeeqi are used primarily in the management of respiratory tract disorders specifically in the control of Zeequn Nafas. Studies of ingredients showed antispasmodic, analgesic, anti-inflammatory, and antioxidant activities. In this article, the authors try to compile all the information they can find regarding Habb-e-Hindi Zeeqi and Joshanda Zeequnnafas its ingredient. Also, it gives a brief overview of the therapeutic importance of this formulation in the control and management of Zeequn Nafas.

KEYWORDS: Habb-e-Hindi Zeqqi, Zeequn Nafas, Bronchial Asthma, Unan.**I. INTRODUCTION HISTORY AND
BACKGROUND OF ASTHMA**

The history of Zeequnnafas (Asthma) dates back to ancient societies of Egypt, China, Korea India Greece, and Rome. So the earliest recorded reference to this pathological entity is found in China in 2600 BC. The oldest known book on medicine "NeiChing" was written by Huang Ti. He writes "In order for the organs of the body to function properly, Qi must continue to flow properly throughout the body. So, dysfunction of the lung will result in failure of respiration, leading to failure of fresh air to be inhaled."^[1] But he failed to define it as properly as the later physicians did.

The term "Asthma" itself is derived from the ancient Greek word "asqma" which was firstly used by Homer's in his epic poem The Iliad, composed in the seventh or eighth century BC. At the beginning of Book 15, Zeus comes to know the Trojan army dispersed by the Greeks, and the Trojan leader, Hector, 'lying on the plain, while

about him sat his comrades, and he was gasping with painful breath [asthmati], distraught in mind, and vomiting blood'. Later in the same book, Homer describes Hector's recovery, in which his 'gasping [asthma] and his sweat had ceased'.^[2]

Homer used the word 'asthma' to denote the laboured breathing, panting, and gasping induced by exertion. Later on, both the Greek playwright Aeschylus (525–456bc) and the Greek lyrical poet Pindar (522–443 BC) used this term in similar ways in the fifth century BC.^[2] Besides it, the asthma like symptoms were recorded in 55th column of the Egyptian "Ebrus Papyrus" which has been dated to be about 1550 BC, considering there is a description of Amenhotep 1 on the back side of the scroll who lived around 1500 to 1526 B.C.^[3] So from the fifth century BC, asthma had begun to constitute not merely a common sign of extreme physical exhaustion or moral weakness, but also a relatively distinct form of pathology with its own symptoms, causes, prognosis, and

treatments.^[2]

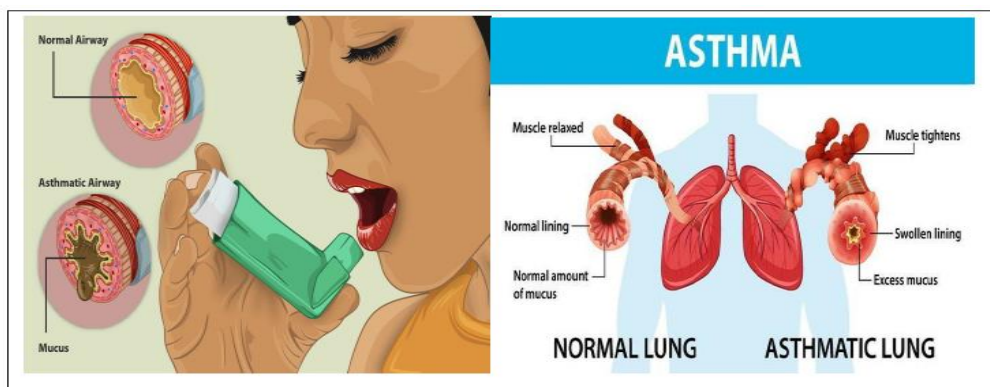


Fig. 0: Astham- A common choronic disorder in male in female.

The Corpus Hippocraticum describes a number of references to breathing difficulties, for which the Hippocratic authors used a variety of overlapping terms: dyspnoea constituted a general and mild form of respiratory discomfort; orthopnoea was used to denote laboured breathing exacerbated by lying down and eased by sitting or standing; tachypnoea referred to rapid breathing; and the term ‘asthma’, sometimes appearing in the plural form as ‘asthmas’ (Asthmata), described a discrete condition or set of conditions marked by relatively severe breathing difficulties. So from this conceptual viewpoint, asthma was regarded as the product of excess phlegm.^[2] But the best account of clinical presentation of asthma has very best given by Aretaeus of Cappadocia (c.ad 50–150) who lived after Hippocrates of Kos. Although he at some extent shared his notions with those of Hippocratic spirit and methodology but he dealt with it as a clinical entity and not as a symptom.^[3] He produced one of the most expansive ancient clinical accounts of asthma in “On the Causes and Symptoms of Chronic Disease.” Writing in Ionic Greek and largely following the Hippocratic method, Aretaeus regarded health and disease as the resultant of balance or imbalance between the four humours and ‘pneuma’, a specific form of air or spirit. The maintenance of health required in particular the unimpeded flow of pneuma through the blood vessels, a process that could be facilitated by bleeding, purgatives, and the administration of narcotics.^[2]

Unani physician Al-Razi has put in detail. He writes: “when somebody coughs regularly, face turns dark red and vigorously pants in same way as one takes rapid breath after heavy exercise, this state of respiration is called Rabu.”^[10] In his writing entitled Kitabul Hawi, he has described Zeequnafas and Rabu in the same context without any difference. He writes: “Zeequnafas and Rabu are caused by Khilt-e- Balghami and characterized by sudden onset of breathlessness along with lung inflammation ensued by downward secretion of excess Nazlat from brain into the lungs.”^[8] While in the same voluminous book, he writes that if someone is attacked by Mutwatir Tanaffus in the absence of heavy exercise

and fever should be called as Rabu and it is also called as “Intasabun Nafas.” It is a diseased condition in which patient feels relief in standing position due to breathlessness and it gets more severe at bedtime.^[8] Abul Mansoor Al-HasanAlqamri has used the term “Zeequnafas” and writes: “Zeequnafas viz broncho-constriction due to accumulation of thick and sticky humour in the lung.”^[11] Ahmad Bin Muhammad Tabri has illustrated this condition with two terms that are Rabu and Intasabunnafas in the same sense.^[12] Ibn Sina has used three terms in three different contexts but slightly different from one another which may have defend the stages of Asthama. So defines Zeequnafas as inspired air could not be exhaled fully due to obstruction in lung airways caused by Auraam, Excess Akhlaat etc. He defines Intasbun Nafas as patient makes his body erect and straight in an effort to broaden the airways, extends the neck and feels relief in erect or standing position. Rabu is a respiratory disorder in which patient takes regular and rapid breathing like one suffers from diphtheria.^[13]

Jurjani has described Rabu and Zeequnafas in two different connotations. According to him, patient of Rabu takes Nafas-e-Mutwatir due to blockage of airways (unable to breath at sitting position and takes rapid and shallow respiration like a running person); while in Zeequnafas, airways are narrowed and air is not taken in and out.^[14] According to Ibn Hubl, Rub and Zeequnafas are similar in their meaning and its sever form is IntasabunNafsa.^[15] Akbar Arzani writes: “Dama is a condition in which patient is breathless in sitting position and takes rapid and shallow breathing. He further explains that writer of the book “Asbaab-wa-Alamaat” has found no difference among Rabu, Buhr, and Zeequnafas but other physicians have not taken them as synonymous. As for instance, Ibn Sina has simply used Rabu for breathlessness and Intasabun Nafas is a severest form of Rabu and Zeequnafas.”^[16]

Hakim Azam Khan explains that there is a great controversy among the Unani scholars about the use of Rabu, Buhr, Zeequnafas, and Intasabun Nafas. He

himself has defined Zeequnnafas simply as difficulty in inspiration and expiration of the air due to narrowing of airways and Intasabun Nafas as its sever form. So in this specific condition, patient can easily take breath only in erect sitting position. He has also written with reference

to Sahib-e-Kamilus Sanaa that Rubu, Buhr, Zeequnnafas and Intasabun Nafas all are the defects of airways due to narrowing. When in blood vessels of lungs, named as Rubu and Buhr and if the trachea is affected, then it is called as Zeeq and Insab-e-Nafas.^[17]

Components of Severity		Classification of Asthma Severity (Youths ≥12 years of age and adults)			
		Intermittent	Mild	Persistent	
Impairment	Symptoms	≤2 days/week	>2 days/week but not daily	Daily	Throughout the day
	Nighttime awakenings	≤2x/month	3-4x/month	>1x/week but not nightly	Often 7x/week
	Short-acting beta ₂ -agonist use for symptom control (not prevention of EIB)	≤2 days/week	>2 days/week but not >1x/day	Daily	Several times per day
	Interference with normal activity	None	Minor limitation	Some limitation	Extremely limited
	Lung function	• Normal FEV ₁ between exacerbations • FEV ₁ >80% predicted • FEV ₁ /FVC normal	• FEV ₁ ≥80% predicted • FEV ₁ /FVC normal	• FEV ₁ >60% but <80% predicted • FEV ₁ /FVC reduced 5%	• FEV ₁ <60% predicted • FEV ₁ /FVC reduced >5%
Risk	Exacerbations requiring oral systemic corticosteroids	0-1/year (see note)	≥2/year (see note)		

← Consider severity and interval since last exacerbation. Frequency and severity may fluctuate over time for patients in any severity category. →
Relative annual risk of exacerbations may be related to FEV₁

Fig. 02: Classification of asthma severity.

II. Types of zeequnnafas

On the basis of underlying cause and symptoms, Unani scholars have divided Zeequnnafas into many types and the first classification with reference to Arab physicians, it was given by Rabban Tabri in his eminent work entitled “Firdausul Hikma” in which he has classified it into the following types:^[7]

- Zeequnnafas Qaseer: In this condition, the respiratory muscles are weakened or constricted.
- Zeequnnafas Mutatabey: Here diaphragm is inflicted by Waram-e-Haar or excess heat.
- Zeequnnafas Mustaqeem: Azla-e-Mustaqeema is inflicted by Rutubat (Wetness), weakness or paralysis of Azla-e-Mustaqeem and patient is compelled to take the erect respiration to avoid dyspnoea.
- Zeequnnafas Qawi: It caused by Iltehaab (Inflammation) and Hararat (Heat) of lungs.
- Zeequnnafas Zae’f: Cused due to Burudat (Coldness).
- Zeequnnafas A’aseer: Ensued by the presence of Ma’ada-e-Galeez (thick material) in the airways or entrapment of Galeez Riyah in the chest.

A. Intrinsic asthma: It is also called idiosyncratic, non-atopic and non-reaginic. This type of asthma develops later in adults without apparent history of personal or family history of allergy, negative skin test and normal serum levels of IgE. It is mostly triggered after upper respiratory infections viruses along with nasal polypi and chronic bronchitis in the form of typical symptom-complex. Viruses (e.g. rhinovirus, para-influenza virus) rather than bacteria are the most common inducers.

B. Extrinsic asthma: It is also called as a topic and allergic asthma. This type of asthma usually starts in the childhood. The ailment is triggered by past history or

personal history of allergic diseases such as rhinitis, urticaria, or infantile eczema. Hypersensitivity to the environmental antigens such as house dust, pollens, animal danders, moulds, and foods is usually found in these cases through inhalation.

C. Mixed type: These cases do not follow any one of the above patterns but possess the mixed features. So those patients, who get asthma in their stage of life, carry the strong allergic component; while those who develop later, tend to non-allergic in nature. Either type of asthma can be precipitated by exposure to cold, exercise, dust, fumes, gases, and emotional stress.

Few more types have been mentioned in the classical texts such as drug-induced asthma and occupational asthma which are worth mentioning here. Drug-Induced Asthma: several pharmacologic compounds provoke asthma. Aspirin sensitive asthma is an unusual type of asthma occurring in the patients suffering from rhinitis and nasal polypi. It has been observed that about 10% of the patients get aspirin sensitive asthma due to hypersensitivity.

III. Etiology of asthma

Unani scholars have described many causes which lead to the affection of asthma.

- Waram of the airways is one of factors which provoke it; so the firm and hard one of them is more active for the pathogenesis.
- Galeez and Raqeeq Khilt play an important role as they get stuck in the airways and cause the decreased airflow.^[14]
- Accumulation of large amount of Fa’sid Mawad in the chest.^[14,17]
- Entrapment of Galeez Riya’h within airways.^[14]
- Increased Yaboosat in the air passages.^[14,17]
- Affection of lungs with Mizaj-e-Ba’rid or Ma’dda-e-

- Ba'rid.^[14]
- Channelization of Nazla from brain into the lungs.^[8,17]
 - Accumulation of Akhala't in trachea and its branches.^[8]
 - Accumulation of Dam and Sadeed in lungs and its surroundings.^[8]

IV. Examples of agents causing asthma in selected occupations

Occupation/Occupational field	Agents
Animal and plant proteins	
Bakers	Flour, amylase
Dairy farmers	Storage mites
Detergent manufacturing	Bacillus subtilis enzymes
Electrical soldering	Colophony (pine resin)
Farmers	Soybean dust
Fish food manufacturing	Midges, parasites
Food processing	Coffee bean dust, meat tenderizer, tea, shellfish, amylase, egg proteins, pancreatic enzymes, papain
Granary workers	Storage mites, Aspergillus, indoor ragweed, grass
Health care workers	Psyllium, latex
Laxative manufacturing	Ispaghula, psyllium
Poultry farmers	Poultry mites, droppings, feathers
Research workers, veterinarians	Locusts, dander, urine proteins
Sawmill workers, carpenters	Wood dust (Western red cedar, oak, mahogany, ebra wood, redwood, Lebanon cedar, African maple, eastern white cedar)
Shipping workers	Grain dust (Molds, insects, grain)
Silk workers	Silk worm moths and larvae
Inorganic chemicals	
Beauticians	Persulfate
Plating	Nickel salts
Refinery workers	Platinum salts, vanadium
Organic chemicals	
Automobile painting	Ethanolamine, diisocyanates
Hospital workers	Disinfectants (Sulfathiazole, chloramines, formaldehyde, glutaraldehyde), latex
Manufacturing	Antibiotics, piperazine, methyldopa, salbutamol,
Rubber processing	Formaldehyde, ethylene diamine,
Plastics industry	Toluene diisocyanate, hexamethyl diisocyanate, diphenylmethyl isocyanate, phthalic anhydride, triethylene tetramines, trimellitic anhydride, hexamethyl tetramine, acrylates

V. Joshanda zeequnafas

A. Ingredients

Name of ingredient	Botanical name of drugs	Quantity
Pudinaa Khushk	(Mentha viridis)	9 gram
Aslussoos Muqashshar Neemkofta	(Glycyrrhiza glabra)	7 gram
Taj	(Cinnamomum cassia)	7 gram
Sapistan	(Chordia dichotoma)	11 Nos.
Neelofar	(Nymphaea nauchali)	12 gram
Badiyaan Neemkofta	(Feoniculum vulgare)	9 gram

➤ Preparation

Boil all the ingredients ½ ser (one ser is equal to 960 gram)^[7] water. When one third part of water is left, mix 30 gram sugar in the solution and administer it orally.

- **Dosage:** 50 ml twice a day
- **Action:** to evacuate the accumulated phlegm out of lungs.
- **Uses:** Zeequn Nafas

B. Habb-e-Hindi Zeeqi

- **Ingredients**
 - Beesh Mudabbar (Aconitum chasmanthum) 3 gram
 - Post Beekh-e-Madar (Calotropis proera) 6 gram
 - Aab-e-Adrak (Zingiber officinale) 250 millilitre

This compound is has been mentioned in other references with slight differences. According to National Formulary of Unani Medicine, part I, the

weight of Beesh Mudabbar, Post-e-Beekh-e-Madar, and Aab-e-Adrak is 15 gram, 30 gram, and 3 litres respectively.^[4] In Qarabadin Najmul Ghani, the volume of Aab-e-Adrak is not mentioned.^[5] With reference to Al-Qarabadin, Aab-e-Adrak is 10 Chhatak (1 Chhatak is equal to 60 gram) in volume. IMPCL, Uttranchal- a government unit for the production of herbal formulations - has prescribed in his label that each Habb of 1 gram contains Beesh Mudabbar 0.060, Post-e-Beekh-e-Madar 0.15 gram, and Aab-e-Adrak 12 millilitre, and Habb-e-Hindi Zeeqi that has been used in this study, has been procured from this company.

- **Dose:** 125-250 milligram
- **Action:** Munaffis-e-Balgham, Dafa-e-Tashannuj
- **Uses:** Zeequnnafas

Clinical evaluation of the patients

- History taking
- Examination: general physical examination and chest examination
- Investigations before and after the treatment:
 - ✧ **Blood:** Hb%, TLC, DLC, ESR, LFT (SGOT & SGPT), KFT (Blood Urea & Serum Creatinine), RBS, AEC
 - ✧ **Urine:** routine and microscopic
 - ✧ **Others:** ECG, and X-ray Chest PA view

PFT was carried out as a diagnostic criterion before and after the treatment. Spirometry can be helpful in identifying the airflow obstruction, but can't assess the degree of severity. Normal readings of PFT are $FEV_1 > 80\%$, $PEF > 80\%$. Airflow obstruction is established by reduced FEV_1/FVC ratio $< 70\%$.^[50] The spirometer that

was used in the trial is available with the NIUM hospital. It is a SpiroWin (c) GENESIS brand.

Assessment of mizaj

It was done on basis of established parameters mentioned in classical Unani literature. It has been attached with the case report from in the annexure section.

Informed consent

Patients, fulfilling the study criteria, were given the detailed information regarding nature of the study, drugs to be used, method of treatment etc. Patients were provided with enough time to go through the informed consent. Written Informed consent was given in English and also it was rendered in Kannada, Urdu, and Hindi as per need by the translators.

- **Method:** The GCP (Good Clinical Practice) was adhered to and regular monitoring was made as stated above.
- **Study design**
 - Observational open clinical trial
 - **Sample Size:** initially it was fixed at 40, and then it was reduced to 30 patients with the approval of IEC during the course of the trial.
 - **Duration of protocol:** 45 days, and follow-up was at each 15th day of the duration protocol.

VI. Trial unani formulations

Joshanda Zeequnnafas is taken from Qarabadin-e-Azam, which comprise of following ingredients with their weights in the dose of 50 ml twice a day after adding 10 gram crude drugs to the appropriate amount of water.

Name of ingredient	Botanical name of drugs	Quantity
Badiyaan Neemkofta	(<i>Feoniculum vulgare</i>)	9 gram
Pudinaa Khushk	(<i>Mentha viridis</i>)	9 gram
Aslussoos Muqashshar Neemkofta	(<i>Glycyrrhiza glabra</i>)	7 gram
Taj	(<i>Cinnamomum cassia</i>)	7 gram
Sapistan	(<i>Chordia dichotoma</i>)	11 Nos.
Neelofar	(<i>Nymphaea nauchali</i>)	12 gram
Habb-e-Hindi Zeeqi is taken as reference from Qarabadin-e-Azam, NFUM Part I, Qarabadin Najmul Ghani, and Al-Qarabadin in the dosage of 125 mg twice daily.		
Beesh Mudabbar	(<i>Aconitum chasmanthum</i>)	3 gram
Post Beekh-e-Madar	(<i>Calotropis procera</i>)	6 gram
Aab-e-Adrak	(<i>Zingiber officinale</i>)	250 ml

- **Criteria for safety evaluation:** Any adverse effect or reaction occurring during the study either in test or control group was recorded.
- **Assessment of efficacy:** Subjective Parameters: decrease or disappearance in attacks of paroxysmal dyspnoea and wheeze.
- **Objective parameters:** improvement in PFT and on the basis of blood examinations.

➤ Statistical analysis

Descriptive and inferential statistical analysis has been carried out in the present study. Results on

continuous measurements are presented on Mean \pm SD (Min-Max) and results on categorical measurements are presented in Number (%). Significance is assessed at 5 % level of significance. The following assumptions on data is made, Assumptions: 1. Dependent variables should be normally distributed, 2. Samples drawn from the population should be random, Cases of the samples should be independent Student t test (two tailed, dependent) has been used to find the significance of study parameters on continuous scale within each group.

Significant figures

- + Suggestive significance (P value: 0.05<P<0.10)
- * Moderately significant (P value: 0.01<P ≤ 0.05)
- ** Strongly significant (P value: P ≤ 0.01)

Statistical software: The Statistical software namely SAS 9.2, SPSS 15.0, Stata 10.1, Med Calc 9.0.1, Systat 12.0 and R environment ver.2.11.1 were used for the analysis of the data and Microsoft word and Excel have been used to generate graphs, tables etc.

VII. RESULTS

Table No. 1: Age distribution of patients studied.

Age in years	No. of patients	%
<20	3	10.0
21-30	9	30.0
31-40	8	26.7
41-50	4	13.3
51-65	6	20.0
Total	30	100.0

Mean ± SD: 38.07±14.60

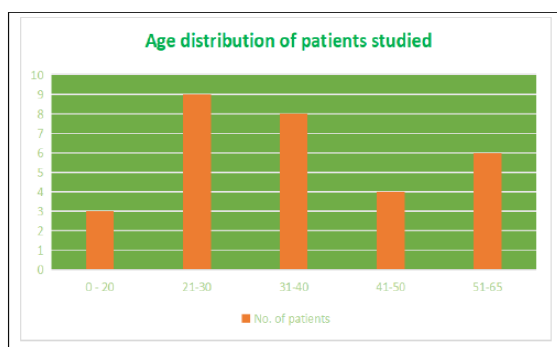


Table No. 2: Gender distribution of patients studied.

Gender	No. of patients	%
Female	13	43.3
Male	17	56.7
Total	30	100.0

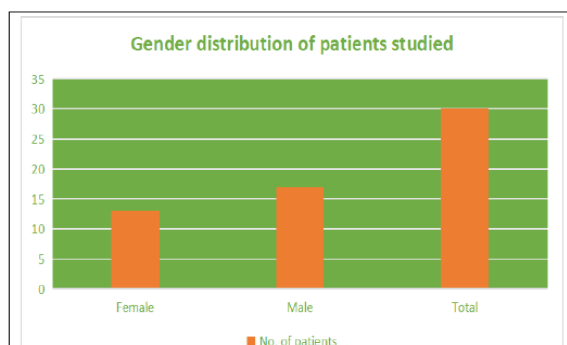


Table No. 3: Religion distribution.

Religion	No. of patients	%
Hindu	13	43.3
Muslim	17	56.7
Total	30	100.0

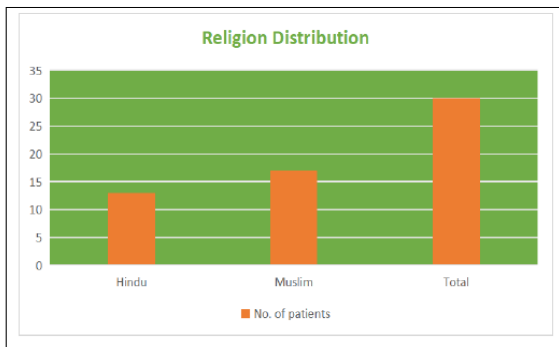


Table No. 4: Marital status of patients studied.

Marital status	No. of patients	%
Married	24	80.0
Unmarried	6	20.0
Total	30	100.0

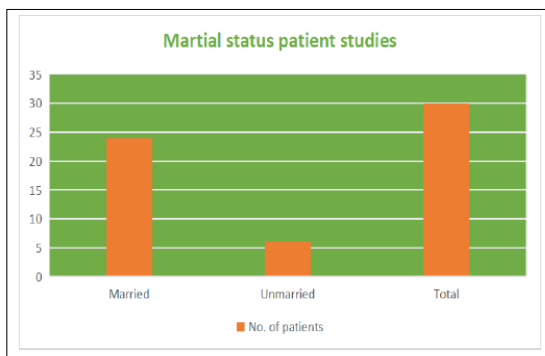


Table No. 5: Height (cm) distribution.

Height(cm)	No. of patients	%
141-150	5	16.7
151-160	10	33.3
161-170	12	40.0
>170	3	10.0
Total	30	100.0

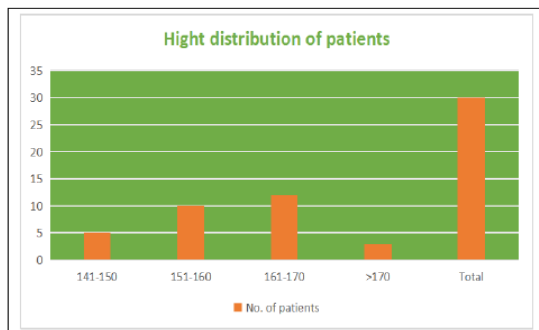
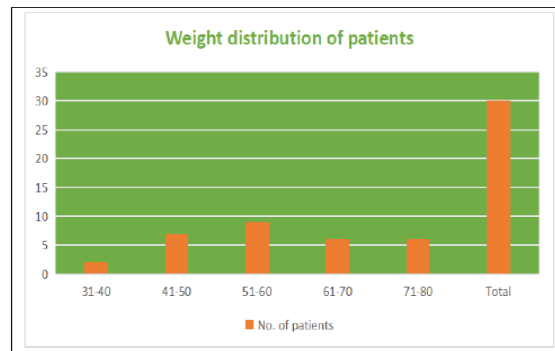


Table No. 6: Weight (kg) distribution.

Weight (kg)	No. of patients	%
31-40	2	6.7
41-50	7	23.3
51-60	9	30.0
61-70	6	20.0
71-80	6	20.0
Total	30	100.0



Statistical methods

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The Statistical software namely SAS 9.2, SPSS 15.0, Stata 10.1, MedCalc 9.0.1, Systat 12.0 and R environment ver.2.11.1 were used for the analysis of the data and Microsoft word and Excel have been used to generate graphs, tables etc.

VIII. DISCUSSION

This clinical study entitled “Efficacy of Joshanda Zeequnnafas and Habbe Hindi Zeeqi in Zeequnnafas (bronchial asthma)” was carried out on 30 patients with the apparent diagnosis of bronchial asthma. The patients were treated for the duration of 45 days, and were assessed fortnightly in the follow-up. All the tests were carried out before the introduction of treatment and after the treatment. The inferred results have been depicted with help of tabulations and graphs.

In the present study, the patients enrolled for the study were divided into five age groups. It was observed that 3 patients (10 %) were found below the age of 20 years, 9 patients (30 %) in the age group of 21-30 years, 4 patients (13.3 %) in the age group of 41-50, and 6 patients (20 %) fell in the age group of 51-65 years. The maximum numbers of patients were found in the age group of 21-30 years. This result also gets credentials from it that almost cases of asthma begin before the age of 25 years; new onset asthma may develop at any time

throughout life. In a study conducted in Mumbai, on behalf of European Community Respiratory Health Survey, asthma prevalence in adults was found aged 20-44 years. But according to GINA 2012, prior to the age of 14, the prevalence of asthma is nearly twice.^[27] It might be due to the enrolment of patients above the age of 15 as well as the small sample size.

The highest incidence of asthma was reported in the male (56.7 %) than females (43.3 %). In a survey of more than 2000 individuals, asthma prevalence was found to be 2.0% in women and about 3.65% in men. A clinical study conducted by Dr. Mohammad Saad Ahmad Khan reported the male female ratio of 3:1.^[73] GINA has also favoured this finding saying that by adulthood, the prevalence of asthma is greater in women than in men which is unclear.^[27] Contrary to all these, API,^[32] Harrison^[28] and Agarwal et al has given that by adulthood the sex ratio becomes equalized. All these discrepancies may be due to inadequate data available, and also needs to be further explored to establish exact the cause.

Asthma has no relation with any religion. In our study, 56.7 % patients were Muslim and 43.3 % were Hindu. It may due to increased turn-around of Muslim patients to the hospital. 80 % of all the enrolled patients were married and 20 % were unmarried. Although the marital status does not has any role in its causation.

As far the BMI is concerned, 15 (50.0%) patients had their BMI less than 23, 13 patients fell in the category of 23-30, and 2 patients had more than 30 with Mean \pm SD: 22.91 \pm 4.72. It infers that obesity is not implicated as risk factor and corroborates the GINA Report 2012 as it is still uncertain that obesity promotes the development of asthma.^[27] Majority of the patents (43.3 %) hailed from upper lower socio-economic status, followed by 26.7% from lower middle class, 23.3 % from upper middle class. These findings verify the reports produced by Aggarwal AN et al,^[72] and Murthy KJR.^[74,75] A recent prevalence study conducted by ICMR, most asthmatics (54.8%) had low socio- economic status, and only a small number (4.8%) had high socio-economic status.^[76] By the personal habit distribution, numbers of the patients with asthma without the history of smoking and tobacco chewing was 16 (53.3%), followed by 11

(36.7%) in smokers, and 3 (10.0%) in tobacco chewers. The highest incidence has been found in non-smokers that counter the previous studies undertaken by Jindal SK, Gupta Dheeraj^[77] and GINA^[27] which favours the association of increased asthma with smokers and tobacco users. It may be due to age factor as the patients enrolled were educationally aware of disadvantages of smoking and tobacco uses. In the present study, the maximum number of 23 patients had mixed dietary habits, whereas 7 patients had vegetarian habits. Thus the observed data corroborates with GINA^[27] and Harrison's.^[28]

Safety parameters

All the safety parameters were also analysed before and after the treatment. The data were analysed using the Student t test, and no significant difference was found. During the entire period of study duration, no apparent side effect was reported. Keeping the above evidence based results into consideration; it infers that the test drugs can be safely used in the management of bronchial asthma. However, long term clinical trials are needed to further explore the other pharmacological actions of the test drugs.

IX. CONCLUSION

Bronchial asthma is an inflammatory airway disease with episodic occurrence of dyspnoea and wheezing. The prevalence of asthma has steadily in the latter part of last century, first in the developed and then in the developing countries. It one of the most common chronic disease globally and currently affects approximately 300 million people worldwide, and an additional 100 million people will be suffered by 2025. Etiologically many inflammatory cells are implicated, particularly mast cells, eosinophils, T-lymphocytes, Dendritic cells, macrophages, and neutrophils resulting in airway narrowing and airway hyper-responsiveness; on the other hand, Ghaleez Balgham, and Bukharat are the potential markers for its pathogenesis. As far the treatment is concerned, conventional medicine is not equipped with such options which can modify or suppress it to the substantial levels. Available treatments are bronchodilators, anti-cholinergics, corticosteroids etc. Ironically these drugs rapidly relieve the symptoms but lay any effect on the disease process, more over they result in systemic side effects including obesity, osteoporosis, gastric ulceration etc.

Keeping these points in view, I have chosen Unani formulation to treat asthma as this is enriched with varied treatments that have been used for centuries for the management of asthma. To fulfil this objective, I adopted a clinical trial with open label observational design and conducted it at NIUM hospital and tried to evaluate the efficacies of test drugs in asthma.

Asthma was diagnosed clinically, radiologically, and on laboratory investigations. Patients fulfilling the inclusion and exclusion criteria were enrolled in the study.

Investigations were done before and after the treatment. All subjective and objective parameters were assessed at 0, 15th, 30th, and 45th day of the treatment. On completion of study, all the data inferred from safety, subjective and objective parameters were statistically tested. In subjective parameters, paroxysmal dyspnoea and wheeze were analysed before and after the treatment using the paired proportion test, and the result was found to be effective ($P < 0.001$). Objective parameters were comprised of PFT (FEV_1 , FEV_1/FVC) and PEF, eosinophilia, and ESR. All the parameters were recorded before and after the treatment, and the data was analysed using paired student t test and showed significant results respectively ($P < 0.001$, 0.186, 0.001, 0.220, 0.785). This verifies that test drugs have potential efficacy in asthma management. Drop-outs were only 5 and the reason was non compliance with the protocol. Patients were advised to report in case of relapse after completion of the study. To assess the toxic effects of the test drugs, safety parameters were adhered before and after the treatment, which were overall normal after the completion of treatment. On the grounds of above cited results and discussions, it infers that test drugs "Joshanda Zeequnnafas and Habbe Hindi Zeeqi" are quite effective and safer for the management of asthma. However, other aspects of test drugs need to be explored to provide complete and safe remedy for bronchial asthma.

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