Comparative Study of Unani Formulations in the Management of *Zeequn Nafas Sho'bi* (Bronchial Asthma)

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Abstract

Although much progress has been made in our understanding of Bronchial Asthma over the past decades, asthma remains frequently encountered condition challenging to physicians. The burden of this disease to the government's healthcare systems, families and patients is increasing worldwide. The etiology of asthma is complex and multi factorial which involves the interaction between genetic factors and environmental stimuli.

Three Studies with Unani drug combinations were taken to compare their efficacy in the management of this disorder. Though all the drug combinations were proven to be effective individually but their comparative study showed the better choice to improve the clinical parameters of bronchial asthma was the Gul-e-Zoofa, Berg-e-Aroosa & Aslus-Soos.

Keywords: Unani drug, Asthma, Gul-e-Zoofa, Berg-e-Aroosa, Aslus-Soos

Introduction

Zeequn Nafas Sho'bi (Bronchial Asthma) is a dangerous lung's disease, which was known to mankind since the time of Hippocrates. Hippocrates was the first to name this disease as 'panting' which means breathlessness (Wise *et al.*, 1985). Later on many Unani scholars keenly studied about Asthma and mentioned it in their books.

Although much progress has been made in our understanding of bronchial asthma over the past decades, but it remains frequently encountered condition challenging to physicians (Anonymous, 1997), the burden of this disease to the government's healthcare systems, families and patients is increasing worldwide (Anonymous, 2005). The etiology of bronchial asthma is complex and multi factorial which involves the interaction between genetic factors and environmental stimuli (Maddox, Schwartz, 2002).

Etio-pathologically three important changes have been identified in bronchial asthma viz. constriction of the bronchial muscle, excess mucus secretion and mucosal oedema in response to hyper-responsiveness. Therefore, its line of Treatment also based on the followings:

1. Bronchodilators to relieve bronchospasm

2. Anti-hypersensitivity drug, to stop hyper-responsiveness

3. Expectorant to eliminate excess mucus

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The Unani scholars have successfully treated this disease by herbo- minerals and even today the present scholars are following them. The western medicine has invented several bronchodilators and corticosteroids thus made the treatment much easier but apart from all these advancements, the complete treatment of bronchial asthma is yet to be achieved.

In Unani system of medicine, management of *Zeequn Nafas Sho'bi* is fully described on the basis of its etiopathogenesis including its symptoms and signs. The principle of its management is based on humours involved, etiology of the disease and its severity. According to Unani concept, the main cause of this disease is accumulation of *Balgham-e-Lazij* (stichy phlegm) in airways causes cough and breathlessness. *Nuzj* (Concoction) and *Tanqia* (evacuation) of *Balgham-e-Lazij* (stichy phlegm) is the basis for the management of ailment.

To facilitate easy elimination of abnormal humour, it is necessary to change the viscosity of ailing humour to its physiological state is called *Nuzj* (concoction). To achieve the above purpose selective *Munzijat-e-Balgham* (phlegm concotives) and *Mushil* (purgatives) are being used. Sometimes *Muqiat* (emetics), *Mulattifat* (demulscents) and *Munaffis-e-Balgham* (expectorants) are also used (Avicena, 1992; Razi, 1998; Jurjani, 1878; Kabiruddin, 2000; Khan, YNM). As precautionary measures phlegmagogue and allergent diets/drugs should be avoided (Barkatullah, 1997). Light diet should be prescribed to the patient and they should be kept away from humid places (Razi, 1998).

Apart from systemic pharmacotherapy, Hakeem Akbar Arzani was the first who used the medicine in the form of *Bakhoor* (smoke) which is very much similar to drug inhalation in recent times (Arzani, YNM).

Purpose of the Study

Objective of this study was to critically review and analyze the three Unani drug formulations investigated earlier and put forth the most promising drug combination that can be reassessed for its efficacy by using more comprehensive and standard protocols.

Material and Method

This retrospective study was carried out to elaborate the promising drug combination studied in the past for the treatment of *Zeequn Nafs Shoabi* (Bronchial Asthma). The study was divided into three groups, namely, I, II and III. In Group I the test drug was decoction of Gul-e-Zoofa (*Hyssopus officinalis Linn.*), Berg-e-Aroosa (*Adhatoda vasica* Nees) and Aslus-Soos (*Glycyrhiza glabra* Linn.), in Group II the test drug was decoction of Irsa (*Iris ensata* Thunb.), Mulethi

(*Glycyrhiza glabra* Linn.), Kakraseenghi (*Pistacia integerrima* Stewart ex Brandis) and Zanjabeel (*Zingiber officinale* Rosc.) and in Group III the test drug was a powdered combination of Qaranfal (*Eugenia caryophylla* Thunb.), Irasa (*Iris ensata* Thunb.), Zanjabeel (*Zingiber officinale* Rosc.) and Maghz-e-Amaltas (*Cassia fistula* Linn.). All the drugs were given orally twice a day for a period of forty two days in Group I and II while sixty days in Group III.

Observations and Results

Effect of test drug combinations on Chest Expansion

In the study the mean expansion of chest recorded before treatment was 1.2 ± 0.4 cm, 1.61 ± .32 cm and 1.3 ± 0.2 cm in group I, II and III respectively. After treatment it was increased to 1.4± 0.5 cm, 2.21± .41 cm and 1.5± 0.5 cm in the same sequence. On applying paired 't' test, the effect of our drugs in increasing the expansion of chest was highly significant (p <.001) (Table 3).

Group II had shown maximum improvement followed by Group I while Group III had shown least improvement in chest expansion.

Table 1: Test drug combinations used

Drug Combination	Form of Test Drug Combination	Ingredients	Botanical Identity
I	Decoction	Gul-e-Zoofa	*Hyssopus officinalis* Linn.
		Berg-e-Aroosa	*Adhatoda vasica* Nees
		Aslus-Soos	*Glycyrhiza glabra* Linn.
II	Decoction	Irsa	*Iris ensata* Thunb.
		Aslus-Soos	*Glycyrhiza glabra* Linn.
		Kakraseenghi	*Pistacia integerrima* Stewart ex Brandis
		Zanjabeel	*Zingiber officinale* Rosc.
III	Powder	Qaranfal	*Eugenia caryophylla* Thunb.
		Irsa	*Iris ensata* Thunb.
		Zanjabeel	*Zingiber officinale* Rosc.
		Maghz-e-Amaltas	*Cassia fistula* Linn.

(Shoaib, 2003; Khan, 2006; Naseer, 2008)

Effect of test drug combinations on Respiratory Rate

The mean respiratory rate recorded before the use of the test drug combinations was 24.6 ± 3.1 per/min., 24.8 ±2 .1 per/min. and 23.1 ± 1.1 per/min in Group I, II and III and it was reduced to 19.0± 0.9 per/min., 20.1± 1.5 per/min. and 20.0± 0.5 per/min respectively at the end of study. The effect of our drugs in reducing respiratory rate was significant (p <.001) (Table 3).

Among them Group I had shown maximum improvement followed by Group II while Group III had shown least improvement in respiratory rate.

Effect of test drug combinations on Breathlessness

The mean number of attacks of breathlessness per week recorded before the use of test drug combinations was 5.7± 2.6, 5.0± .83 and 5.8± 1.8 and it was reduced to 0.5± 0.7, 0.56± .67 and 0.6± 0.4 in Group I, II and III respectively at the end of study. The effect of our drugs in reducing the number of attacks per week was significant (p <.001) (Table 3).

Similar to above, it was observed that Group I had the maximum mean improvement in respiratory rate followed by Group II and III.

Effect of test drug combinations on Peak Expiratory Flow Rate (PEFR)

The mean peak expiratory flow rate recorded at the time of commencement of study of test drug combinations was 205 ± 73.7 lit. /min and 271 ± 60.0 lit. / min in Group I and II. At the end of study, it was increased to 378± 70.3 lit. /min. and

Table 2: Regimen of test drug combinations used

Drug Combination	Ingredients of Test Drug Combination	Form of Drug Combination	Dosage and Timings	Duration
I	Gul-e-Zoofa, Berg-e-Aroosa & Aslus-Soos	Decoction	4 grams each drug 12 Hourly	42 days
II	Irsa, Mulethi, Kakraseenghi, Zanjabeel	Decoction	6 grams each drug 12 Hourly	42 days
III	Qaranfal, Irasa, Zanjabeel, Maghz-e-Amaltas	Powder	3, 6, 3 & 4 grams each drug 12 Hourly	60 days

(Shoaib, 2003; Khan, 2006; Naseer, 2008)

354± 61.4 lit./min. in the same sequence. The PRFR parameter was not included in the group III. The statistical analysis shows that the effect of our drugs in increasing PEFR was significant (p <.001) (Table 3).

Maximum mean improvement in PEFR was noted in Group I followed by Group II.

Effect of test drug combinations on Eosinophil Count

The mean eosinophil count recorded before the start of the study was 7.0 ± 1.5 per cubic mm, 9.30 ± 2.6 per cubic mm and 13.63 ± 2.60 per cubic mm in Group I, II and III respectively. It was decreased to 4.6 ± 1.1 per cubic mm, 6.00 ± 1.89 per cubic mm and 12.94 ± 2.24 per cubic mm respectively at the end of study. The statistical analysis shows that the effect of our drugs in reducing eosinophil count was significant (p <.001) (Table 3).

Table 3: Effect of drug combinations on different parameters

S. No.	Parameter	Drug Combination I		Drug Combination II		Drug Combination III	
		Before Tt	After Tt	Before Tt	After Tt	Before Tt	After Tt
1.	Mean of Chest Expansion ± S.D. (cm)	1.2±0.4	1.4±0.5 t = -5.2; p < 0.001	1.61±.32	2.21±.41 t = -14.90; p < 0.001	1.3±0.2	1.5±0.5 t = -7.2; p < 0.001
2.	Mean Resp. Rate ± S.D. (Per min.)	24.6±3.1	19.0±0.9 t = 6.6; p < 0.001	24.8±2 .1	20.1±1.5 t = 14.2; p < 0.001	23.1±1.1	20.0±0.5 t = 7.3; p < 0.001
3.	Mean No.of attacks of Breathlessness ± S.D. (Per Week)	5.7±2.6	0.5±0.7 t = 10.9; p < 0.001	5.0±.83	0.56±.67 t = 8.4; p < 0.001	5.8±1.8	0.6±0.4 t = 11.2; p < 0.001
4.	Mean PEFR ± S.D. (Lit. /Min.)	205±73.7	378±70.3 t = 15.85; p < 0.001	271±60.0	354±61.4 t = 15.85; p < 0.001	-	-
5.	Mean Eosinophil Count ± S.D. (Cubic mm)	7.0±1.5	4.6±1.1 t = 9.7; p < 0.001	9.30±2.6	6.00±1.89 t = 11.95; p < 0.001	13.63± 2.60	12.94± 2.24 t = 2.33; p < 0.05
6.	Mean AEC ± S.D. (Cubic mm)	-	-	728.23± 166.13	509.30± 120.90 t = 11.48; p < 0.001	917.67± 221.84	877.80± 218.12 t = 2.32; p < 0.05

(Shoaib, 2003; Khan, 2006; Naseer, 2008)

During the study, Group II had shown maximum improvement followed by Group I while Group III had shown least improvement in eosinophil count.

Effect of test drug combinations on Absolute Eosinophil Count (AEC)

The mean absolute eosinophil count recorded before the start of treatment was 728.23 ± 166.13 per cubic mm and 917.67 ± 221.84per cubic mm in Group II and III respectively. It was decreased to 509.30± 120.90 per cubic mm and 877.80 ± 218.12 per cubic mm in the same sequence at the end of study. The AEC parameter was not included in the group I. The statistical analysis shows that the effect of our drugs in reducing absolute eosinophil count was significant (p <.001) (Table 3).

Maximum mean improvement was noted in Group II followed by Group III in reducing absolute eosinophil count.

Discussion

The test drugs used for the management of *Zeequn Nafas Sho'bi* (Bronchial Asthma) mainly have anti allergic, anti inflammatory, bronchodilatory and mucolytic effects. The studies conducted have different combinations having the drugs which possessed the above mentioned effects. Therefore all the test drug combinations have proved effective in the management of the disease.

The most effective drug combination is pertaining to Group I (Table-3). This combination showed maximum effect to increase mean peak expiratory flow rate (PEFR). Measurement of PEFR is the most important parameter along with forced expiratory volume in one second (FEV$_1$). PEFR could be considered authentic in absence of FEV$_1$. This effect can be attributed to presence of Aroosa (*Adhatoda vasica* Nees) and Aslus-soos (*Glycyrhiza glabra* Linn.) in the drug combination, which have bronchodilating and anti histaminic activities (Chopra *et al.,* 1980; Rastogi and Mehrotra, 1992; 1993; 1994). The role of Zoofa (*Hyssopus officinalis Linn.*) was also significant because, it has potent bronchodilatory and expectorant activity and helped in elimination of thick mucus. The improvement was also recorded in other parameters like respiratory rate, attacks of breathlessness, expansion of chest, eosinophil and absolute eosinophil count. The mechanism of action of the combination can be attributed to the effects of the drugs present in it like anti histaminic and bronchodilator of Aroosa (*Adhatoda vasica* Nees) and Aslus-soos (*Glycyrhiza glabra* Linn.) and expectorant property of Zoofa (*Hyssopus officinalis Linn.*) (Rastogi and Mehrotra, 1993; 1994).

Second most effective drug combination belongs to Group II (Table-3).This combination was most effective on expansion of chest. This overall effect may

be attributed to anti inflammatory and bronchodilating properties of Zanjabeel (*Zingiber officinale* Rosc.) and Aslus-soos (*Glycyrhiza glabra* Linn.) (Chaterjee and Pakrashi, 1995; Trivedi, 2004; Sharma, 2003). The anti allergic and mucolytic properties of the drugs present in drug combination are also responsible for the improvement in PEFR, breathlessness, respiratory rate and eosinophil count.

Third effective drug combination belongs to Group III. The expectorant property of Zanjabeel (*Zingiber officinale* Rosc.), Irasa (*Iris ensata* Thunb.) and Qaranfal (*Eugenia caryophylla* Thunb.) (Arzani, 1893; Kabiruddin, 1425-1433 H) and anti allergic property of Zanjabeel (*Zingiber officinale* Rosc.) and Irasa (*Iris ensata* Thunb.) (Khan, YNM; Khan, 1995) may be attributed to the improvement of different clinical parameters of bronchial asthma (Table 3).

Conclusion

To manage *Zeequn Nafas Sho'bi* (Bronchial Asthma), several Unani *Mufrid* (Single) and *Murakkab* (Compound) drugs are described in Classical Unani Literature and many studies have been carried out in different institutions to validate their efficacy on scientific parameters. On comparing some of these studies, it is being concluded that:

To manage bronchial asthma, all drug combinations were more or less effective but drug combination of Group I was found more effective in increasing the peak expiratory flow rate (PEFR) which is one of the important parameters to monitor the effects of drugs. The drug combination of Group II was found effective in the expansion of chest and drug combination of Group III also showed the significant effects on different clinical parameters.

Among the three drug combinations i.e. Gul-e-Zoofa, Berg-e-Aroosa, Aslus-Soos (Group I), Irasa, Aslus-Soos, Kakraseenghi, Zanjabeel (Group II) and Qaranfal, Irasa, Zanjabeel, Maghz-e-Amaltas (Group III), the best three was found to be Gul-e-Zoofa, Berg-e-Aroosa, Aslus-Soos (Group A) in the management of *Zeequn Nafas Sho'bi* (Bronchial Asthma).

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