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Original Research Article

Therapeutic Response of Unani Medicine in the Management of Daul Shalal al Ra'ash (Parkinson's Disease)

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ABSTRACT

Aim and Objectives: The study aimed to study the clinical evaluation of Parkinson's disease in detail and to assess the efficacy of selected Unani formulations in the management of Parkinson's disease.

Material and Methods: The study was designed as a randomized single-blind comparative study with a sample size of 20. Ten patients in each groups A and B were randomly selected. The formula A contains Waj, Aqarqarha, Tukhm e Konch, Asgand, Kulanjan and the formula B contains Shehad and Usthukhudoos. The subjective parameters like tremors, slow movements, impaired posture, rigid muscles, and facial expressions were reduced significantly in both groups. Parkinson's disease questionnaire – 39 (PDQ - 39) was used as an objective parameter.

Results: The overall response in group A revealed that 09 (90%) of patients had a satisfactory response to their clinical symptoms and signs and 01 (10%) patient was found in the categories of poor response whereas in group B 07 (70%) of patients had a satisfactory response from their clinical symptoms and signs and 03 (30%) patients were found in the categories of poor response. Moreover, both groups were found safe without any adverse effects.

Conclusion: It can be concluded that the drugs of groups A and B produced a significant effect in the treatment of Parkinson's disease. However, the biological mechanisms through which the group A and B drugs reduce the clinical symptoms and signs remain unclear and need to be validated with experimental and clinical studies.

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INTRODUCTION

Following Alzheimer's disease, Parkinson's disease (PD) is the most common neurodegenerative disease. Parkinson's disease is a common clinical manifestation of several types of substantia nigra damage. It is thought to be caused by a combination of hereditary and environmental factors (Golwalla, 2017). Diagnosis of PD, especially early in the course of the disease, is crucial for effective and efficient management. Parkinson's disease symptoms include both motor and non-motor symptoms. Non-motor symptoms may require special attention, such as impulse control disorders that can be devastating to patients and their families (Neurology, 2005). Resting tremors, stiffness, bradykinesia, and postural instability are the four cardinal indications of Parkinson's disease (PD) (Clinical Medicine, 2009).4 Secondary forms of Parkinsonism caused by stroke, tumors, poisons or drugs, and neurodegenerative illnesses (Parkinsonian

syndromes) that share some common symptoms with PD can all complicate the diagnosis. Once an accurate diagnosis is made, treatment and management of symptoms can begin.

Since there is no definitive test for the diagnosis of PD, the disease must be diagnosed based on clinical criteria. To make an accurate diagnosis, you must have a good grasp of the wide range of clinical symptoms of PD. Dopaminergic drugs are used in most current therapeutic techniques to reduce the severity of PD symptoms. The most effective drug in modern medicine is levodopa. The response to levodopa medication, on the other hand, varies over time, and long-term use is frequently linked to crippling motor problems. The timing of starting levodopa medication is a contentious subject since it must balance the benefits of symptom reduction against the long-term dangers of developing motor problems. There is a significant educational need to improve the present diagnosis and treatment methods (Karen et al., 2008).

Approximately 50,000 Americans are diagnosed with Parkinson's disease each year, according to estimates, however, some estimates are much higher. It's difficult to get an accurate count of the number of cases because many people in the early stages of the disease mistake their symptoms for natural aging and don't seek medical help. The fact that different disorders can cause PD symptoms and that there is no conclusive test for the disease might make diagnosis difficult. Men are around 50 percent more likely than women to get Parkinson's disease. While PD affects people all around the world, several studies have revealed that it is more common in industrialized countries. Other researchers have linked increasing pesticide use to an increased risk in persons who reside in rural regions (Behari et al., 2001).

According to Unani Medicine, Soo e Mizaj is the cause of Ra'sha. As a result, the nerves are not fully stimulated by the energy that is transmitted to them. Therefore, the nerves become significantly weakened. They do not deteriorate to the point of paralysis or full palsy. Rather, they retain some energy, allowing the organ to be dragged up. The nerves, on the other hand, grow feeble and are unable to support the organ for a while. As a result of its weight, the organ sinks. Similarly, they produce movements that are opposed to one another (Shara Asbab, 2010).

In "Zakheera e Khuwazamshahi," written by Ahmed ul Hasan ul Jurjani, there is a full chapter on Ra'sha and its causes. According to him, there are three absolute causes of this disease: weakness of motor power, weakness of appendages of movement, and weakness of both motor power and appendages of movement (Zakhera Khawarazm Shahi, 2010).

The use of Unani Medicine, to treat Parkinson's disease is a source of concern. If psychological issues are the cause of the tremor, give the body some relaxation and make the patient happy. Maintain a calm and peaceful environment for the patient so that catabolic functions in the body are decreased and power is not significantly weakened. In all types of tremors, eliminate the source of the tremor. Extreme dryness can also be a cause of tremors. If the dryness is so extreme, the nerves become desiccated and unable to be folded like dry leather. Ra'sha is treated in a similar way to other neurological illnesses. Therefore, the treatment is the same as it is for facial palsy or paralysis. If the ailment is caused by a cold, mix 3 grams each of Jun-Ba daster (Castorium), Aqarqarha (Anacyclus pyrethrum DC.), and Hilteet (Ferula foetida Regel.) with Roghan e Zaitoon and massage the affected organ (Al Akseer, 2003).

The Parkinsonian tremors can be well visualized in the context of Ra'sha, as stated by the ancient Unani Physicians, because the tremor, or Ra'sha, is one of the essential aspects of Parkinsonism. Shaikh Isamil Jurjani specifically mentioned Parkinsonian tremors and the difficulties in beginning movements.

Parkinson's disease is detected in a large number of patients from all over India. The patients who attended several specialist clinics at the Government Nizamia General Hospital in Hyderabad also found this condition. Parkinson's disease appears to be a serious issue in India as well. Humans have been attempting to protect their health and prevent disease since the dawn of humanity. The present study aimed to evaluate the efficacy of Unani medicine in the case of Parkinson's disease.

Treatment in the allopathic medical system is predicated on symptomatic alleviation. When anti-Parkinson medications don't work or have side effects, surgery is used. These existing facts provided me with an internal desire to choose this topic and develop a comprehensive body of work in this burgeoning field. The study's goal was to determine the efficacy of an Unani formulation in the treatment of Parkinson's disease, as well as to raise patient awareness and promote Parkinson's disease prevention methods.

MATERIAL AND METHODS

The study was designed as a Randomized Single-Blind comparative clinical trial and the sample size was determined as 20 patients. After obtaining clearance from the institutional ethical committee, "Therapeutic Response of Unani medicine in the Management of "Daul Shalal Al ra'ash (Parkinson's Disease)" was carried out at Govt. Nizamia Tibbi College and Hospital, Charminar, Hyderabad during 2016-2019,

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and the patients with Parkinson's Disease (Daul Shalal Al ra'ash) are selected from Out Patient Department based on clinical signs and symptoms, history, clinical examination, routine investigations (CBP, CUE, RBS) and randomly divided into two Groups A and B. After taking their informed consent, they were included in the trial. Patients who fulfill inclusion criteria such as 40 to 80 years of age, either sex, tremors mainly on the upper limbs (pill-rolling movement), Slowed movement (bradykinesia), Impaired posture and balance, Rigid muscles, Speech changes are included in the study and who didn't fulfill inclusion criteria such as Tumors of the midbrain, Trauma/ injury to the head, Chorea, age below 40 and above 80 years, Women with pregnancy and lactation, mentally challenged patients were excluded from the study. The duration of treatment was 90 days. The efficacy of treatment of both groups was assessed based on subjective and objective parameters (Parkinson's Disease Questionnaire 39 (PDQ39)11, Arbitrary Scoring of the Symptoms). No concomitant treatment was allowed.

List of Ingredients and Method of Preparation of Group - A Formula (Safoof).

S. N.	Unani Name	English Name	Scientific Name	Quantity
1	Waj	Sweet Flag	*Acorus calamus* Linn.	1 gm
2	Aqarqarha	Spanish Pellitory	*Anacyclus pyrethrum* DC.	1 gm
3	Tukhm-e-Konch	Lyon bean	*Mucuna prurienc* B.	1 gm
4	Asgand	Winter cherry	*Withania somnifera* Dunal.	1 gm
5	Khulanjan	Greater galangal	*Alpinia galanga* Linn.	1 gm

The above drugs were cleaned by weeding out unwanted material and impurities. Then all the ingredients were powdered and packed in sachets weighing 5 gm each. 5 gm twice a day with milk before meals were given orally to the patients for 90 days.

List of Ingredients and Method of Preparation of Group-B Formula (Ma'ul Asal Murakkab)

S. N.	Unani Name	English Name	Scientific Name	Quantity
1	Shehad	Honey	*Apis mellifern*	50 ml
2	Usthukhudoos	Lavender	*Lavandula stoechas* Linn.	3.5 gm

The above 2nd (Usthukhudoos) drug was cleaned by weeding out unwanted material and impurities. Then it was powdered and packed in sachets weighing 3 gm each. 3 gm once a day with 100 ml of warm honey water before breakfast was given orally to the patients for 90 days.

RESULTS

The observations and results concerning demography, clinical symptoms, signs, and PDQ – 39 scores obtained from the trial have been illustrated in tables and graphs. They are discussed in the following paragraphs consecutively to show the efficacy of the group A and B formula separately.

As it is evident from Table 1, the highest no of patients observed in the age group of 71- 80 years i.e., 08 cases (40%) and the age. Table 2, shows that the maximum no of patients was males 15 (75%) followed by females 05 (25%). Table 3, shows that the temperament of the patients was accessed based on Ajnas-e-Ashra and it was recorded that almost all the patients i.e., 20 (100%) were balghami mizaj. As it is evident from Table 4 the highest prevalence of Parkinson's disease was seen in patients 08 (40%) who belonged to the lower middle class. In this study, Parkinson's disease is more common in skilled workers followed by both businessmen and housewives as is evident in Table 5.

Table 1. Comparative distribution according to Age

Age in Years	Group A		Group B	
	No. of Patients	%	No. of Patients	%
40-50	0	0.0	1	10.0
51-60	4	40.0	3	30.0
61-70	3	30.0	1	10.0
71-80	3	30.0	5	50.0
Total	10	100.0	10	100.0

Table 2. Comparative distribution according to gender

Gender	Group A		Group B	
	No. of Patients	%	No. of Patients	%
Male	8	80.0	7	70.0
Female	2	20.0	3	30.0
Total	10	100.0	10	100.0

Table 3. Comparative distribution according to Mizaj

Mizaj	Group A		Group B	
	No. of Patients	%	No. of Patients	%
Damavi	0	0.0	0	0.0
Balghami	10	100.0	10	100.0
Safravi	0	0.0	0	0.0
Saudavi	0	0.0	0	0.0
Total	10	100.0	10	100.0

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Table 4. Comparative distribution according to Socio-Economic Status

Socio-Economic Status	Group A		Group B	
	No. of Patients	%	No. of Patients	%
Upper Class (UC)	0	0.0	0	0.0
Upper Middle(UM)	3	30.0	3	30.0
Lower Middle(LM)	4	40.0	4	40.0
Upper Lower (UL)	2	20.0	2	20.0
Lower (L)	1	10.0	1	10.0
Total	10	100.0	10	100.0

Table 5. Comparative distribution according to Occupation

Occupation	Group A		Group B	
	No. of Patients	%	No. of Patients	%
Skilled worker	5	50.0	3	30.0
Unskilled worker	0	0.0	1	10.0
Professional	2	20.0	1	10.0
Businessmen	2	20.0	2	20.0
Housewife	1	10.0	3	30.0
Total	10	100.0	100	100.0

Table 6. Showing remission of PDQ-39 (mean ±S.D.) after treatment in both the groups

Group	Before treatment	After treatment	t-test	p-value
Group-A	104.0 ±31.9	72.4 ±28.6	7.022	0.00006
Group-B	109.3 ±24.4	80.6 ±33.8	5.102	0.00064

Table 7. Therapeutic response in Group-A and Group-B patients.

Response	Group-A		Group-B	
	No. of cases	%	No. of cases	%
Excellent	0	0.0	0	0.0
Good response	0	0.0	0	0.0
Satisfactory response	9	90.0	7	70.0
Poor response	1	10.0	3	30.0
Total	10	100.0	10	100.0

D I S C U S S I O N

As it is evident from Table 1, the highest no of patients observed in the age group of 71- 80 years i.e., 08 cases (40%) and the age. It shows that the disease is more prevalent in old-aged persons. This supports the findings of (De Lau LM et al., 2006) and (Nazir A Ahangar et al., 2011). Table 2, shows that the maximum no of patients was males 15 (75%) followed by females 05 (25%). It shows that males are affected more than females. This supports the findings of (Behari et al., 2001).

Table 3, shows that the temperament of the patients was accessed based on Ajnas-e-Ashra and it was recorded that almost all the patients i.e., 20 (100%) were balghami mizaj. According to the Unani system of medicine, the pathogenesis of most diseases is described in terms of temperament and humor. The diseases of phlegmatic temperament mainly occur in those organs and persons who are previously having phlegmatic temperament physiologically. With this observation, it can be concluded that subjects with balghami mizaj were more prone to have Balghami ailments like Parkinson's disease which is one of the main nervous system-related diseases. This supports the findings of (Shoaib M et al., 2010).

As it is evident from Table 4 the highest prevalence of Parkinson's disease was seen in patients 08 (40%) who belonged to the lower middle class. According to the above distribution, Parkinson's disease may be more prevalent in middle socioeconomic status. In this study, Parkinson's disease is more common in skilled workers followed by both businessmen and housewives as is evident in Table 5.

The efficacy of group A and group B drugs were accessed based on improvements in typical clinical symptoms and signs of Parkinson's disease. At the end of the study, there were significant improvements in these symptoms in both groups A and Group B.

As it is evident from Figure 1, In group A, before treatment 6 patients suffered from depression (out of 10) after the treatment 5 patients got relieved. It is showing the good response of group A drugs to depression. Before treatment 3 patients were anxious (out of 10) after the treatment 2 patients got complete relief and 1 patient got moderate relief. Group A formulation showed a good response on poor memory before treatment 5 patients suffered from bad memory (out of 10 patients) after the complete 90 days of treatment 4 patients got good recovery of memory. At the first visit 6 patients faced difficulty in speech (out of 10) after the 90 days of treatment 4 patients got a good response and 2 got a moderate response. Before the treatment 7 patients complained about muscular

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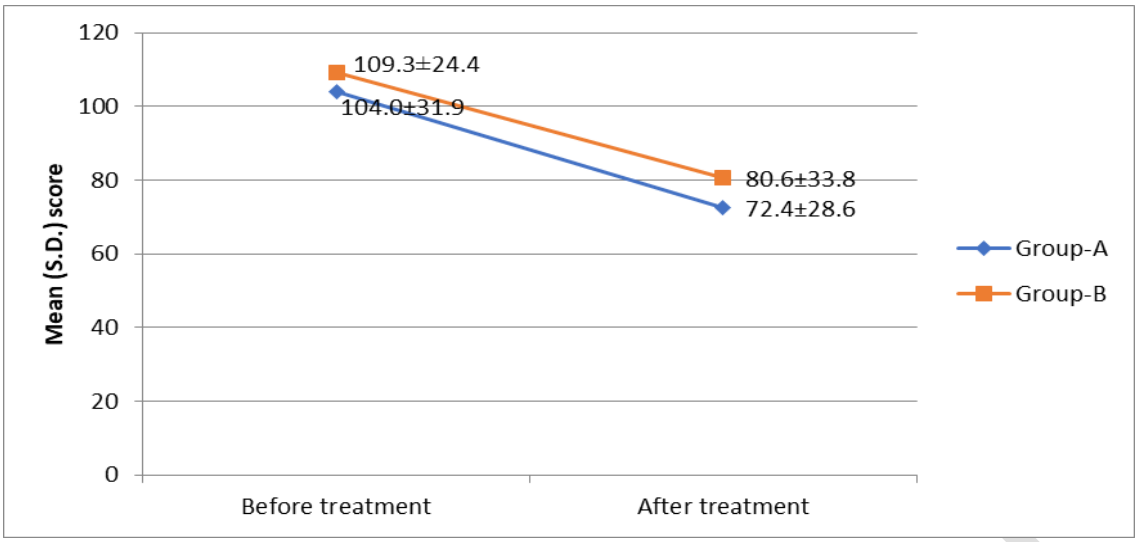

Figure 1. Showing remission of PDQ-39 (mean ±S.D.) after treatment in both the groups.

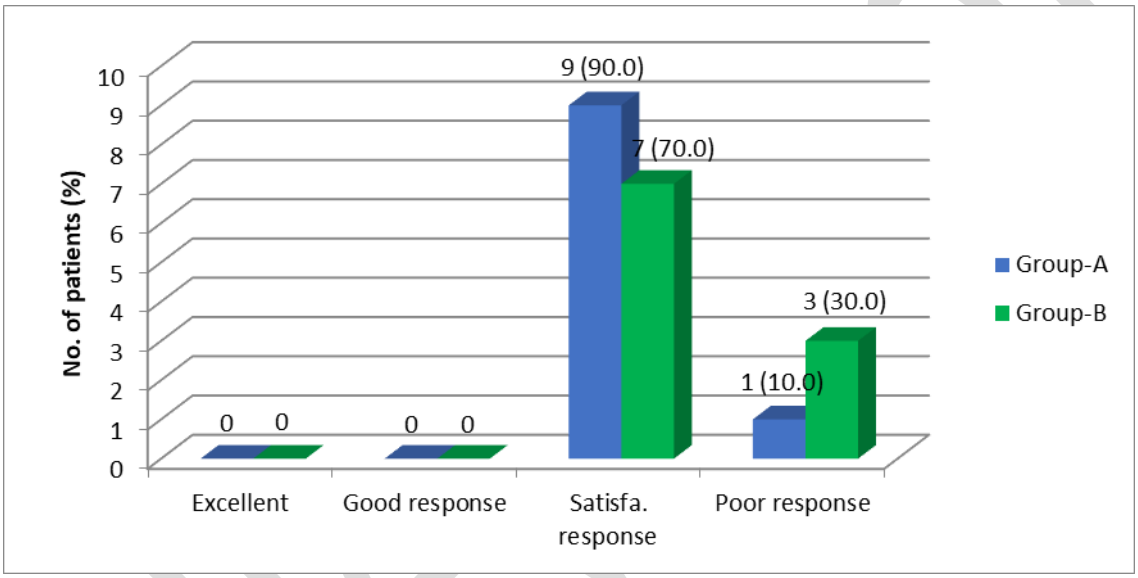

Figure 2. Comparative distribution of patients according to therapeutic response in both the groups.

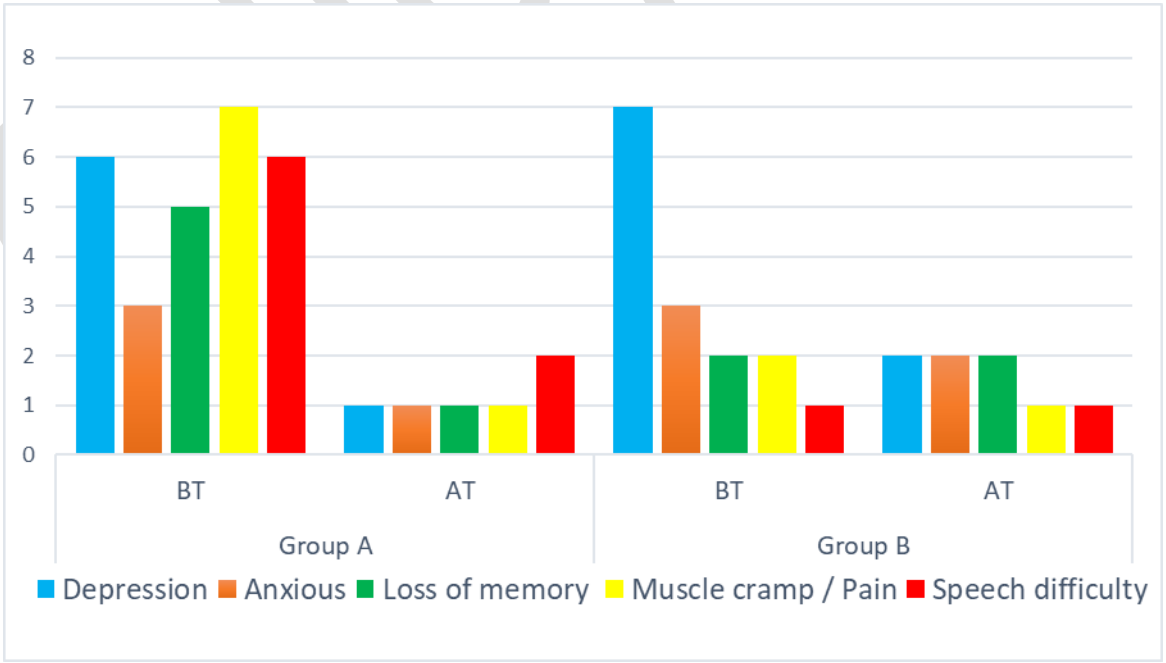

Figure 3. Therapeutic response of groups A and B drugs on memory, emotional status, speech, and muscle cramps. PDQ39.

pain and spasms (out of 10 patients) and after the treatment 6 patient got complete relief and 1 patient got partial relief of spasms.

As it is evident from Figure 2, In Group B, before treatment 7 patients suffered from depression (out of 10 patients) after the treatment 5 patients got relieved from depression. And 2 patients got moderate relief. Before treatment 3 patients were anxious (out of 10 patients) after the treatment 1 patient got complete relief and 2 patients got moderate relief. Group B formulation showed a mild response on poor memory before treatment 2 patients suffered from bad memory (out of 10 patients) after the complete 90 days of treatment 2 patients got a mild recovery of memory. At the first visit out of 10 patients, 1 patient faced difficulty in speech after the 90 days of treatment the complaint remained as same. Before the treatment 2 patients complained about muscular pain and spasms (out of 10 patients) and after the treatment 1 patient got complete relief and another 1 patient got partial relief of spasms.

The improvement in patients with Parkinson's disease may be due to the diverse pharmacological actions of different ingredients of compound group A and group B Unani drugs. The important ingredients are Tukhm e Konch (Mucuna prurience), which contains 5 – 7 % of L-DOPA, which is a precursor of the neurotransmitter dopamine (Misra and Wranger, 2007) (Vadivel and Pugalenthi, 2008). Some studies indicate that L-dopa derived from M. pruriens has many advantages over synthetic L-dopa when administered to Parkinson's patients. Synthetic L-dopa can have several side effects when used for many years.

Another important ingredient is Aqarqarha (Anacyclus pyrethrum). Because of its anti-depressant activity. It plays a major role in reducing depression in patients (Badhe et. al., 2010). It also acts as a memory enhancer, and it shows good results in patients with poor memory (Ronal Darwin et al., 2012). According to (Jayasree et al., 2012), a significant dose of Anacyclus pyrethrum shows muscle relaxant activity. The Muqawi Asab (Neurotanic) activity of Akarkrha might be another factor for the overall improvement of the disease and hence the improvement in tremors. This supports the finding of (Nazir A Ahangar et al., 2011). Since Aqarqarha possesses therapeutic properties like a nervine stimulant, reducing numbness and reducing pain in the body helps to improve the clinical signs and symptoms of Parkinson's disease.

The therapeutic properties of the Waj plant include removing the morbid matters of the brain (Munaqqie Dimagh), improving the condition of forgetfulness (Nisyan), reducing the sensation of numbness (Khadar), helping to maintain the spasm of the muscles (Istirkha), slurring of speech (Luknate Zaban), and strengthening the nervous system.

Hence, the clinical signs and symptoms of Parkinson's disease are a concern, the patients suffer from excessive rigidity in the joints and spasms in the muscles. The Tukhm e Konch of formula A helps to reduce extreme rigidity and spasm in these patients.

The anti-inflammatory property of Kulanjan helps to reduce inflammation, especially in the nervous system. Due to improving the secretion of saliva and strengthening the stomach, proper digestion takes place and helps to produce good quality humor. This ensures the proper functioning of the body. This also reduces stiffness and pain, especially in the joints.

Another ingredient included in formula A is Asgand, which plays a major role in the improvement of the complaints of this condition. It helps to reduce the inflammation of the nervous system while reducing pain. Furthermore, it acts as a general body tonic, which will be highly useful in debilitating diseases like this. Hence, it helps to reduce the extreme rigidity in the joints and strengthen the joints of these patients.

Honey is Haar Yabis in temperament. It is useful in Amraz-e-Barida. It acts as a Munaqqi e Balgham from the stomach and provides it with Sukhunat (calorific). It also provides warmth for the nerves and helps with the production of Safra. Furthermore, it acts as a Jali (detergent), Mufattih (deobstruent), and a concoctive of phlegm. It also energizes and potentiates the nerves and limits the diseases of the head and brain.

The one important ingredient of formula B is Usthukhuddoos, which possesses a lot of properties that help to reduce the number of complaints of Parkinson's disease. This plant helps to clean up the morbid matter, especially from the brain, while reducing inflammation and strengthening the brain and nervous system. Furthermore, it helps to remove the weakness in the facial area as well as other parts of the body of these patients. Eventually, this plant helps to control the production of involuntary movements (tremors). Hence, it helps to improve the mental well-being of these patients by reducing the abnormal activities and repose of the mental faculties of the patients.

The combined formula A and B can reduce tremors associated with a variety of ailments and improve other cardinal clinical features of Parkinson's disease, especially those of neuromuscular origin, and has been used for this purpose by both ancient and modern Unani Physicians. Munaffise-Mawad-e-Fasida, Munaffis-e-Balgham, Mukhrij-e-Balgham, Muqawi Aam wa Khas (General tonic), Muharrik-e-A'asab (Nervine Stimulant), Musakkhin, Daaf-eSar'a

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(Antiepileptic), Naaf-e-Falij wa Laqwa (Beneficial to Hemiplegia & Facial palsy), Muqawi Qalb (Cardiotonic) and Muqawi Dimagh (Brain Tonic), Mufatteh Sudud (Deobstruent) is more important in improving the condition than individual efficacy of a drug.

Unani scholars' postulations become more important than individual efficacy and toxicity since the temperament of medicine may be altered in compound synthesis, at least partly due to mutual synergistic or antagonistic effects. Muharrik-e-A'asab is one of the medications in the formulation (nervine stimulant).

CONCLUSION

In the present study, an attempt is made to treat patients with Parkinson's disease with oral Unani drugs to evolve an effective Unani treatment. The response to treatment was defined as an excellent response, good response, satisfactory response, and poor response. Therapeutic response of groups A and B showed that out of 20 patients, 16 (80%) patients got a satisfactory response to their clinical symptoms and signs and 04 (20%) patients were found in the categories of poor response. It is evidenced that the formulae of both groups are having effectiveness in relieving clinical symptoms and signs of Parkinson's disease. It is evident from the above-described observations that, group A medicines are more effective than group B. Parkinson's disease signs & symptoms were improved in both groups. At the end of the study, the statistical significance of the result was noted. It was concluded that the efficacy of Unani formulations on Parkinson's disease was found clinically & statistically significant & both the groups are safe & effective in the management of Parkinson's disease. Based on the above result and discussion it can be concluded that the drugs of groups A and B produced a significant effect in the treatment of Parkinson's disease. However, the biological mechanisms through which the group A and B drugs reduce the clinical symptoms and signs remain unclear and need to be validated with experimental and clinical studies.

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CONFLICTS OF INTERESTS

None declared.

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