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RESEARCH ARTICLE

THERAPEUTIC RESPONSE OF UNANI MEDICINE IN THE MANAGEMENT OF ZOAF – E – ISTADGI (ERECTILE DYSFUNCTION)

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Abstract

Background: In men, the inability to achieve or maintain an erection sufficient for satisfactory sexual function is known as Erectile Dysfunct ion (ED). It is a common condition, affecting approximately one in five men over the age of 40. Moreover, it is a treatable disorder that can significantly impact the well-being of both men and their partners. The most common causes are related to vascular and neurological impairme nts. Many men experiencing sexual difficulties may be reluctant to consult a physician, considering it an embarrassing issue. However, modern medicine has revealed multiple medical and psychological explanations for ED, including the possibility of serious underlying conditions. In Unani medicine, treatment aims to strengthen the vital organs with muqawwi-e-bah, muqawwi-e-asaab, and muqawwi-e-aza-e-ra'eesa drugs, which are traditionally recommended for managing sexual disorders.

Aim: The study aims to evaluate the efficacy of Unani drugs in participants suffering from Erectile Dysfunction and to provide affordable, natural, and safe medicine for all socio-economic statuses.

Methods: The study was designed as a Randomized Single-Blind Comparative Clinical Trial with a sample size of 40 participants, who were randomly allocated into two groups (A and B), with 20 participants in each. The drugs selected for Group A were Aqar Qarha, Tukm-e-Pyaz, Tukm-e-Sarwali, Mochras, Alsee, and Zanjabeel. These Unani drugs were administered in Safoof (powder) form orally, at a dosage of 5 g twice daily after food with milk. The drugs selected for Group B were Jarjeer (Taramira), Naaspal (Post-e-Anar), and Aqar Qarha. These were prepared in the form of a Tila (local application) and applied externally once daily. The duration of treatment in both groups was 90 days, and all results were analyzed using the relevant statistical tests.

Results: During the study, Group A cases showed a 70% excellent response and 30% good response, whereas in Group B cases, 30% showed excellent response, 50% good response, and 20% satisfactory response. Before starting therapy, semen analysis revealed that almost all participants had low sperm count, reduced semen quantity, poor sperm motility, and decreased erection. After treatment, Group A showed a 70% excellent response and a 30% good response, while in Group B, 30% showed an excellent response, 50% a good response, and 20% a satisfactory response.

Conclusion: Based on the above results and discussion, it can be concluded that the drugs of both Group A and Group B produced significant effects in the management of erectile dysfunction. However, Group A showed comparatively better efficacy. The underlying biological mechanisms responsible for these effects are still unclear and require further validation through well-designed experimental and large-scale clinical studies.

Introduction:-

Infertility is defined as the failure to conceive after one year of regular unprotected sexual intercourse. Approximately 10–25% of couples of reproductive age fall within this definition. Early Unani physicians believed that only 12–25% of males were responsible for sterility, while modern medicine considers both males and females equally responsible.

Erectile Dysfunction (ED) is one of the major male factors contributing to infertility. It is defined as the consistent inability to attain or maintain a sufficiently rigid penile erection to permit satisfactory sexual performance. The condition may also occur in association with, or independent of, decreased libido. Several factors can contribute to ED, including psychological, neurogenic, vascular, endocrine, and drug-related causes [1]. Common etiologies include reduced libido due to hypogonadism or depression, psychological issues such as anxiety, vascular insufficiency, neuropathic disorders, and adverse drug effects [2].

ED is estimated to affect around 15% of men annually, with more than 150 million men worldwide currently affected. While both physiological and psychological factors can play a role, vascular abnormalities of the penile blood supply and erectile tissue—often associated with cardiovascular disease and its risk factors—are considered the most common causes [3,4].

Unani medicine adopts a holistic approach to sexual dysfunction. It does not confine the problem to inability to perform intercourse, but also includes loss of libido, erectile dysfunction, ejaculatory insufficiency, orgasmic disorders, excessive nocturnal emissions, and infertility in males. These conditions may arise from Zoaf-e-Bah (sexual debility) or Nuqs-e-Mani (seminal defects). Importantly, Unani scholars distinguished between sexual inadequacy and seminal inadequacy [5–7].

According to the Unani system of medicine, health is maintained by equilibrium in the humors and harmonious function of the body. The Quwwat-e-Mudabbir-e-Badan (the body's power of self-preservation) plays a vital role in maintaining this balance. The Unani physician, therefore, seeks to identify the underlying humoral imbalance and restore it to cure the disease.

Erectile function requires the principle of a "sound mind in a sound body." Unani physicians emphasized the role of psychological well-being in maintaining sexual function and classified Zoaf-e-Bah into two forms:

- **Zoaf-e-Bah Asli (Haqeeqi):** True sexual debility due to dysfunction of the sexual organs themselves, often caused by circulatory insufficiency of the penis or local disease. Congenital deformities such as hypospadias, short penis, stricture, or elongated frenulum may also impair erection [5–7].
- **Zoaf-e-Bah Shirki (Ghair Haqeeqi):** Secondary sexual debility in which the sexual organs are structurally normal but dysfunction arises due to diseases of other organs (e.g., heart, brain, liver, and blood disorders) or psychological disturbances. Stress, depression, and other emotional states may significantly affect sexual performance.

Thus, ED is not only a problem of sexual arousal but also a condition with complex psychological, social, and physical consequences, often leading to profound distress and loss of self-esteem [3].

Methodology:-

The study was designed as a Randomized Single-Blind Comparative Clinical Trial with a sample size of 40 participants. After obtaining clearance from the Institutional Ethical Committee, the study titled "Therapeutic Response of Unani Medicine in the Management of Zaof-e-Istadgi (Nauooz) (Erectile Dysfunction)" was carried out at the Government Nizamia Tibbi College and Hospital, Charminar, Hyderabad, during 2016–2019. Participants were recruited from the Outpatient Department (OPD) based on history, clinical signs and symptoms, clinical examination, and routine investigations (CBP, CUE, RBS, semen analysis, and serum testosterone). They were then randomly divided into two groups: Group A and Group B, each consisting of 20 participants. Informed consent was obtained from all participants before inclusion in the study. Inclusion criteria are males aged 30–55 years, Participants with a sense of dejection and shyness, fear psychosis, weakness of the nerves, reduced sperm count, and diabetes mellitus. And the exclusion criteria are participants with systemic or severe diseases, congenital disorders of the reproductive system, Venereal diseases, coronary artery disease (CAD), hypertension, Genetic defects, accessory sex gland infections, mentally challenged individuals, and individuals' age below 30 years or above 55 years were excluded.

The duration of treatment was 90 days, and follow-up was every two weeks. Subjective parameters (difficulty in achieving erection, shyness, fear) and objective parameters (Sexual Health Inventory for Men [SHIM], arbitrary scoring of symptoms) were assessed on day 0, 15, 30, 45, 60, 75, and 90. No concomitant treatment was allowed.

List of Ingredients and Method of Preparation of Group - A Formula (Safuf);

S. No	Unani Name	English Name	Scientific Name	Quantity
1	AqarQarha	Spanish Pellitory / Spanish Chamomile	Anacyclus pyrethrum DC.	800 mg
2	Tukm e Pyaz	Onion	Allium cepa	1000mg
3	Tukm e Sarwali	French marigold	Tagetes erecta	800 mg
4	Mochras	silk-cotton	Bombax ceiba Linn.	800 mg
5	Alsee	Linseed	Linum usitatissimum	800 mg
6	Zanjabeel	Ginger	Zingiber officinalis	800 mg

All drugs were cleaned of impurities, powdered, and packed into sachets weighing 5 g each. The prescribed dosage was 5 g twice daily with milk after meals, given orally for 90 days.

List of Ingredients and Method of Preparation of Group-B Formula (Tila).

S. No	Unani Name	English Name	Scientific Name	**Quantity**
1	Jarjeer(Taramira)	Eruca/Arugula	*Eruca sativa Linn.*	125mg
2	Naaspal (Post-Anar)	Pomengranate	*Punica granatum*	1 Tola/10gm
3	AqarQarha	Spanish Pellitory / Spanish Chamomile	*Anacyclus pyrethrum* DC.	2 Tola/20gm

The above drugs were cleaned and mixed to prepare a Tila (local application). 2 Ratti of this preparation was applied locally over the penis once daily.

Results:-

The observations and results regarding demography, clinical symptoms, signs, and SHIM scores obtained from the trial are presented in the tables and graphs. These findings are discussed below to illustrate the efficacy of the Group A and Group B formulations separately. As shown in Table 1, the highest number of participants was in the 35–45 years age group (31 cases; 77.5%). Table 2 indicates that erectile dysfunction was more prevalent among participants from the lower-middle class (21 cases; 52.5%). In this study, erectile dysfunction was found to be more common among skilled workers (15 cases; 37.5%), followed by unskilled workers (11 cases; 27.5%), as presented in Table 3. Table 4 reveals that the majority of affected participants were non-vegetarians (38 cases; 95%), compared with only 2 cases (5%) of vegetarians. The association of erectile dysfunction with diabetes mellitus is highlighted

in Table 5. A total of 28 participants (70%) were non-diabetic, while 12 participants (30%) were diabetic. Finally, Table 6 shows that temperament (*mizaj*) assessment, based on *Ajnas-e-Ashra*, recorded 19 cases (47.5%) as balghami mizaj, 15 cases (37.5%) as safravi mizaj, and 6 cases (15%) as sawdavi mizaj.

Table 1: Incidence in Different Ages

Age in Years	Group A		Group B	
	No. of Participants	Percentage	No. of Participants	Percentage
30-35	7	35.0	4	20.0
36-40	4	20.0	7	35.0
41-45	4	20.0	5	25.0
46-50	2	10.0	1	5.0
51-55	3	15.0	3	15.0
Total	20	100.0	20	100.0

Table 2: Distribution of participants according to Socio-Economic Status

Socio-Economic Status	Group A		Group B	
	No. of Participants	Percentage	No. of Participants	Percentage
Upper Class (UC)	0	0.0	0	0.0
Upper Middle (UM)	4	20.0	4	20.0
Lower Middle (LM)	11	55.0	10	50.0
Upper Lower (UL)	3	15.0	4	20.0
Lower(L)	2	10.0	2	10.0
Total	20	100.0	20	100.0

Table 3: Distribution of participants according to Occupation

Occupation	Group A		Group B	
	No. of Participants	Percentage	No. of Participants	Percentage
Skilled worker	5	25.0	10	50.0
Unskilled worker	4	20.0	7	35.0
Professional	3	15.0	2	10.0
Business man	8	40.0	1	5.0
Total	20	100.0	20	100.0

Table 4: Distribution according to Diet

Diet	Group A		Group B	
	No. of Participants	Percentage	No. of Participants	Percentage
Non-Veg	18	90.0	20	100.0
Vegetarian	2	10.0	0	0.0

Total	20	100.0	20	100.0

Table 5: Distribution according to Diabetes Mellitus

Family History	**Group A**		**Group B**	
	No. of Participants	Percentage	No. of Participants	Percentage
Present	5	25.0	7	35.0
Absent	15	75.0	13	65.0
Total	20	100.0	20	100.0

Table 6: Distribution according to Mizaj

Mizaj	**Group A**		**Group B**	
	No. of Participants	Percentage	No. of Participants	Percentage
Damavi	0	0.0	0	0.0
Balghami	10	50.0	9	45.0
Safravi	6	30.0	9	45.0
Sawdavi	4	20.0	2	10.0
Total	20	100.0	20	100.0

Table 7: Reduction of symptoms at different follow-ups in Group A and B participants

Parameter	Severity	**Base-line**	**15th day**	**30th day**	**45th day**	**60th day**
Trouble getting an Erection **GroupA**	3+	6	5	-	-	-
	2+	11	11	6	1	-
	1+	3	4	11	6	6
	Absent	-	-	3	13	14
	Total	**20**	**20**	**20**	**20**	**20**
Trouble getting an Erection **Group B**	3+	9	9	3	-	-
	2+	11	9	7	8	4
	1+	-	2	10	6	10
	Absent	-	-	-	6	6
	Total	**20**	**20**	**20**	**20**	**20**

Table 8: Remission of the SHIM scale after treatment in both Groups

Acc to	Before treatment (Mean ± SD)	After treatment (Mean ± SD)	t-test	p-value
Group-A	12.6 ±4.3	21.9 ±2.9	15.485	<0.00001
Group-B	10.8 ±3.3	19.1 ±3.6	10.751	<0.00001

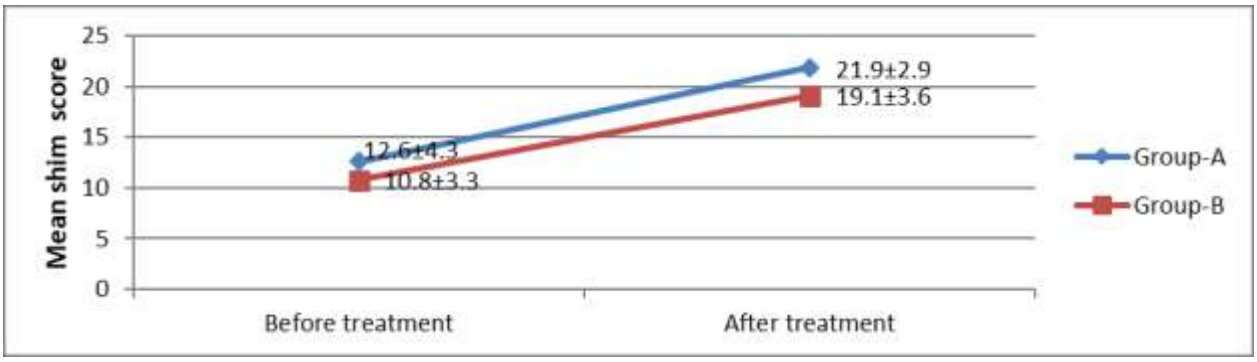

Fig. 1: Showing remission of the Shim scale after treatment in both Groups

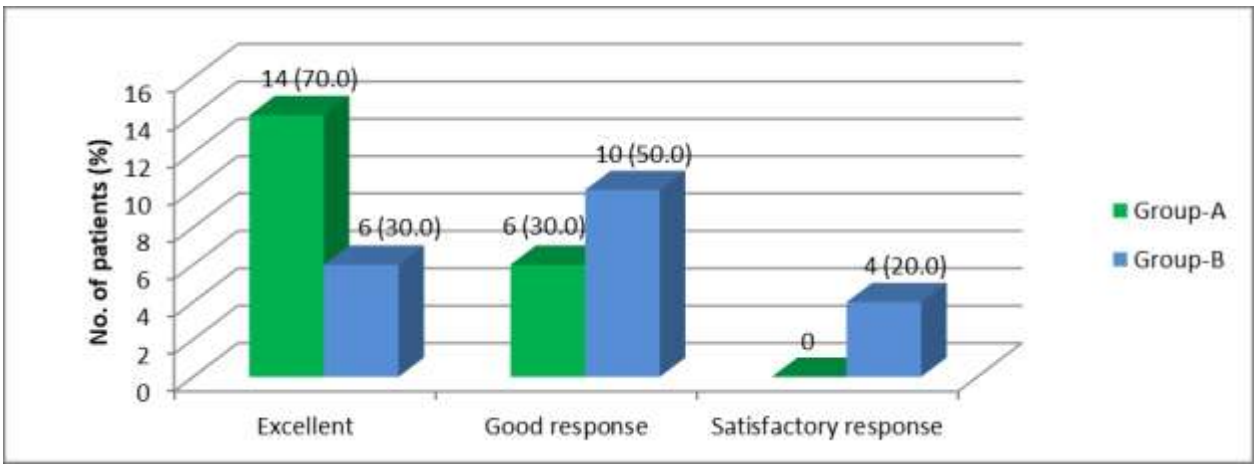

Fig. 2: Comparative distribution of participants according to therapeutic response in both groups

Table 9: Therapeutic response in Group A and Group B participants

Response	Group-A (n = 20)		Group-B (n = 20)	
	No. of cases	Percentage %	No. of cases	Percentage %
Excellent	14	70.0	6	30.0
Good response	6	30.0	10	50.0
Satisfactory response	0	0.0	4	20.0
Total	20	100.0	20	100.0

Discussion:-

As shown in Table 1, the highest number of participants was observed in the 35–45 years age group (31 cases; 77.5%). This indicates that erectile dysfunction is more prevalent among adults in this age range, supporting the findings of [8,9]. Table 2 highlights that erectile dysfunction was more common among individuals from the lower-middle socioeconomic class (21 cases; 52.5%), which aligns with previous reports [10,11]. Occupational analysis (Table 3) revealed that skilled workers were more affected (15 cases; 37.5%), followed by unskilled workers (11 cases; 27.5%), which is consistent with earlier studies [12,13]. Table 4 shows that non-vegetarians (38 cases; 95%) were more frequently affected compared to vegetarians (2 cases; 5%). The association of erectile dysfunction with diabetes mellitus (DM) is shown in Table 5, where 12 cases (30%) were diabetic and 28 cases (70%) were non-diabetic. Men with DM are at significantly higher risk of ED compared to non-diabetics. Corona et al. reported prevalence rates of 19.4%, 15.4%, 10.4%, and 21.6% for mild, mild-to-moderate, moderate, and severe ED, respectively, among men with DM [14]. The severity of ED is strongly influenced by the type and duration of

diabetes, type of treatment, and associated comorbidities [15–17]. A large-scale study by Fedele et al. reported ED prevalence of 26% in Type 1 DM and 37% in Type 2 DM patients, which corroborates the present findings [18].

Table 6 presents temperament (mizaj) distribution, where 19 cases (47.5%) were balghami mizaj, 15 cases (37.5%) safravi mizaj, and 6 cases (15%) sawdavi mizaj. According to Unani principles, the pathogenesis of most diseases is explained in terms of temperament and humor. Individuals with balghami mizaj are more susceptible to phlegmatic ailments, including ED. Lack of physical activity, which is common in balghami individuals, further predisposes them to this condition [19,20]. The efficacy of Group A and Group B formulations was assessed using clinical symptoms and SHIM scores. At the end of the study, both groups showed significant improvements, though Group A demonstrated greater efficacy. Statistical analysis of 40 participants revealed highly significant results ($p < 0.00001$ for both groups). The t-test value for erectile function was 15.485 in Group A and 10.751 in Group B, confirming the therapeutic effect of both formulations. No adverse events or recurrences were reported during or after the 90-day treatment period.

The therapeutic response in Group A showed that 14 participants (70%) had an excellent response and 6 (30%) had a good response. In Group B, 6 participants (30%) showed an excellent response, 10 (50%) had a good response, and 4 (20%) had a satisfactory response. These results indicate that Group A medicines were more effective than Group B, though both formulations were clinically and statistically significant.

The effectiveness of these formulations can be justified by the pharmacological properties of their ingredients. Unani pharmacotherapy is based on correcting abnormal mizaj and strengthening vital organs, particularly reproductive function. The actions of drugs used in this trial include muqawwi-e-bah, muqawwi-e-jigar, muqawwi-e-aza-e-ra'eesa, moghalliz-e-mani, and muqawwi-e-asaab.

- Zingiber officinale (Ginger): Enhances sexual behavior in male rats, possibly through its bioactive constituents (gingerol and shogaol), which influence the nervous system and hormone levels [21, 22].
- Allium cepa (Onion): Reported to increase serum testosterone and antioxidant capacity, improving sexual performance [23].
- Anacyclus pyrethrum (Aqar Qarha): Demonstrated to enhance sexual behavior, penile erection, and libido in animal models [24,25], with additional nervine stimulant and antidepressant effects [26].
- Linum usitatissimum (Flaxseed): Conflicting evidence exists, but some studies suggest potential hormonal modulation, warranting further trials [27].
- Bombax ceiba (Mochras): Shown to improve spermatogenesis, sexual behavior, and testosterone levels in animal models [28,29].
- Eruca sativa (Jarjeer): Rich in antioxidants and phytochemicals with potential benefits for male reproductive health [30].
- Punica granatum (Pomegranate): Exhibits antioxidant, anti-inflammatory, and protective effects in urological disorders, including ED [31].

In addition, recent clinical evidence supports the use of standardized herbal formulations containing pomegranate and cocoa extracts in improving erectile function and overall sexual health in aging males [32]. Taken together, these findings suggest that Unani formulations containing these ingredients are effective, safe, and provide a promising natural alternative for the management of erectile dysfunction. However, the precise biological mechanisms remain unclear and require further validation through experimental and large-scale clinical studies.

Conclusion:-

In the present study, an attempt was made to evaluate the efficacy of oral Unani formulations in the management of erectile dysfunction. Treatment response was categorized as excellent, good, satisfactory, or poor. Out of 40 participants, 20 (50%) showed an excellent response, 16 (40%) showed a good response, and 4 (10%) showed a satisfactory response. No participants fell into the poor-response category. These findings demonstrate that both formulations were effective in relieving clinical symptoms and signs of erectile dysfunction.

It is further evident that Group A (test formulation) was more effective than Group B (control formulation), although improvements were observed in both groups. Statistical analysis confirmed the clinical significance of these results ($p < 0.00001$), thereby rejecting the null hypothesis.

In conclusion, Unani formulations are both clinically and statistically effective, as well as safe, in the management of erectile dysfunction. However, the precise biological mechanisms underlying these effects remain unclear and require validation through further experimental and large-scale clinical studies.

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Conflicts of Interest
No conflict of interest.

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