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A RETROSPECTIVE OBSERVATIONAL STUDY ON INFLUENCING THE QUALITY OF LIFE WITH INDIVIDUALIZED HOMOEOPATHIC MEDICINE IN TREATMENT OF GOUT

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ABSTRACT:

Background: The likelihood of an individual developing gout increases with higher serum urate concentration. The severity and duration of hyperuricemia are closely related with the complexities of gout. **Aim:** To evaluate the effectiveness of individualized homoeopathic treatment in improving the quality of life in gout patients. **Objective:** The objective of this study is to compare the variation in serum uric acid levels and GAQ 2.0 scores of gout patients obtained before and after the individualized homoeopathic treatment. **Methods:** This was a retrospective observational study guided through the clinical case records of 30 gout patients included with their laboratory reports of serum uric acid levels and GAQ 2.0 scores throughout the treatment from White Memorial Homoeo Medical College and Hospital. **Results:** Mean reduction for serum uric acid (4.57) and GAQ 2.0 score for each set of questions (177.83, 68.3, 68.6, 310, 199) were considerable when compared with the values of the before treatment of gout. Males (73%) were commonly affected when compared with females (27%). The common age group affected was between 28 and 49 years. And the most frequently prescribed medicine was colchicum autumnale (N=7). **Conclusion:** This study reveals the positive impact on individualized homoeopathic treatment for gout patients after evaluating the significant variation in serum uric acid levels and GAQ 2.0 scores.

KEYWORDS: GAQ 2.0 scores, Gout, Hyperuricemia Individualized homoeopathic treatment, Retrospective observational study, Serum uric acid levels.

INTRODUCTION:

Gout is a purine metabolism disorder associated with hyperuricaemia. This is characterised by deposition of crystals of monosodium urate monohydrate in soft tissues especially in and around the joints of extremities resulting in inflammatory gouty arthritis. (4,1,2,3) In adults, the normal serum concentration of uric acid generally falls within the range of 3-7 mg/dl. However, in women, the levels are slightly lower by approximately 1 mg compared to men. (4)

Hyperuricemia, which is a key feature for gout defined as an increased plasma urate concentration exceeding 420 $\mu\text{mol/L}$ (7.0 mg/dL). Gouty arthritis typically manifests as the initial attack after a prolonged period of elevated uric acid levels in the body, lasting anywhere from 20-40 years. The peak age for its onset in men is typically between 40-60 years, while in women, it often occurs after menopause. (5) Global estimation of gout occurrence is 2-6 times more in male than females. (6) Hyperuricemia is regarded as a hallmark for gout. (7)

Epidemiology:

Gout has a relatively high occurrence rate, affecting approximately 0.3% of the population. (2)

The occurrence of gout is on the rise, particularly in developed countries, primarily due to dietary changes that involve consumption of purine-rich foods, high levels of saturated fats, fructose-containing beverages, and alcohol. In the United Kingdom, the prevalence of gout is 1.4%, while in the United States, it is 2.7%.

Asian populations are particularly vulnerable to gout as their dietary patterns shift toward a more Western style. Gout predominantly affects men (with a ratio of 10:1) and is rare before young adulthood, except in cases where it indicates a specific genetic abnormality. It is also infrequent in premenopausal females. The majority, around 85-90% of gout cases, are considered idiopathic, meaning their cause is unknown. Men typically have higher levels of uric acid compared to women. (3)

Types: (4)

Gout can be categorized into two types: primary and secondary. Primary gout: It is a hereditary metabolic disorder characterized by the overproduction of uric acid. This is often associated with an increased synthesis of purine nucleotides. Secondary gout: Secondary hyperuricemia

occurs as a result of various underlying diseases that cause either an increased production or a reduced excretion of uric acid.

Causes:

It is beneficial to classify hyperuricemia based on the underlying physiological factors, specifically whether it is caused by increased production, decreased excretion, or a combination of both.⁽⁵⁾ Increased intake of purine rich foods and alcoholic beverages included with smoking and reduced physical activity leads to hyperuricemia.⁽⁸⁾

Primary hyperuricaemia
Increased uric acid production
Idiopathic (10%)
Specific enzyme defects
Hypoxanthine-guanine phosphoribosyl transferase (HGPRT) deficiency
Increased phosphoribosyl pyrophosphate (PRPP) synthetase activity
Decreased uric acid excretion
Idiopathic (90%)
Secondary hyperuricaemia
Increased uric acid production
Increased purine synthesis <i>de novo</i> -specific enzyme defects
Complete HGPRT deficiency
Glucose 6-phosphatase deficiency (type I)
Increased turnover of preformed purines
Myeloproliferative disorders, e.g. polycythaemia vera, granulocytic leukaemias
Lymphoproliferative disorders, e.g. lymphomas, myelomas
Others—Macroglobulinaemia (Waldenstrom's)
Carcinomatosis
Chronic haemolytic anaemia
Gaucher's disease
Exfoliative psoriasis
Decreased uric acid excretion
Renal, e.g. chronic kidney disease, nephrogenic diabetes insipidus
Increased levels of organic acids, e.g. exercise, starvation, ketoacidosis and alcohol drugs, e.g. diuretics, low-dose aspirin, pyrazinamide, cyclosporine, ethambutol
Other medical disorders, e.g. hyperparathyroidism, myxoedema, Down's syndrome, lead nephropathy, sarcoidosis

Figure 1: Causes of Hyperuricemia ⁽¹¹⁾

Pathogenesis: ⁽³⁾

Uric acid is the end product of purine metabolism, both from internal processes and dietary sources, in the human body. The concentration of uric acid in the blood is determined by the equilibrium between purine synthesis, dietary purine intake, and the elimination of urate by

the kidneys (66%) and intestines (33%). Around 90% of individuals with gout experience impaired excretion of uric acid, while 10% exhibit increased production as a result of high cell turnover. Less than 1% of cases are attributed to an inborn error of metabolism.

Clinical features:

Hyperuricaemia is asymptomatic. It also causes:

Acute gout:

This is the most common presentation of gout in its acute phase of recurrence.⁽⁹⁾ It is followed by an asymptomatic inter-critical phase; a second acute attack likely within 2 years.

Acute gout commonly manifests in middle-aged males, characterized by a sudden onset of excruciating pain, swelling, and redness primarily affecting the first metatarsophalangeal (MTP) joint. These attacks can occur unpredictably but may be triggered by excessive food or alcohol intake, dehydration, or the initiation of a diuretic medication. If left untreated, these episodes typically persist for approximately 7 days.

Around 25% of gout attacks involve a joint other than the big toe. In severe cases, the presence of crystal cellulitis on the affected area can make it challenging to clinically differentiate gout from infectious cellulitis. Factors such as a family or personal history of gout and elevated levels of serum urate can strongly indicate the diagnosis. However, in cases of uncertainty, it is advisable to conduct blood and joint fluid cultures to confirm or rule out an infectious cause.

Chronic interval gout, with acute attacks superimposed on low grade inflammation and potential joint damage.

People with extremely elevated levels of uric acid can develop chronic tophaceous gout, where sodium urate deposits (known as tophi) form in the skin and around the joints. This condition is characterized by persistent joint pain and occasional acute gouty attacks occurring on top of the chronic symptoms. These tophi appear as smooth white deposits and contribute to the ongoing discomfort experienced by individuals with chronic tophaceous gout.

Chronic polyarticular gout is rare, except in elderly people on longstanding diuretic treatment, in renal failure, or when allopurinol is started too soon after an acute attack.⁽³⁾ other joints like knees, heels and fingers can be affected.⁽¹⁰⁾

Management: ⁽¹¹⁾

The initial gout attacks can be spaced apart by as much as 2 years and are typically managed by addressing the symptoms. It is recommended for individuals to reduce their alcohol consumption, particularly beer, which contains high levels of purines and fructose. Non-diet carbonated beverages are also high in fructose and should be limited. A diet that lowers total calorie and cholesterol intake is beneficial, and it is advised to avoid purine-rich foods such as offal, certain types of fish and shellfish, and spinach.

MATERIALS AND METHODS:**Study design and setting:**

This is a single arm, retrospective, non-randomised observational study which was conducted on 30 patients with the diagnosis of gout at the outpatient department of White Memorial Homoeo Medical college and Hospital, Attoor. This trial was conducted over a duration of six months.

Sample size:

Sample size for this study was minimum of 30 cases satisfying the inclusion and exclusion criteria.

Inclusion criteria:

Patient diagnosed with gout having high serum uric acid (>7 mg/dL). Age group 20 -70 years. Patients of both sexes were included.

Exclusion criteria:

Patients with any severe systemic illness were excluded. Patients taking other mode of treatment.

Methodology:

The retrospective study sample of 30 cases were collected from individuals suffering from gout at the Outpatient Department of White Memorial Homoeo Medical College and Hospital, Attoor. Based upon the collected records, patients were both clinically and laboratorically diagnosed with gout. Each patient had a detailed case taking and a suitable homoeopathic

medicine was selected with a proper totality of symptoms. Dose selection, potency selection and repetition of medicine was done according to the principles laid down in the Organon of medicine. Follow-up was done once in every 2 weeks or as per the need of the patient especially during the acute pain of gout. Pre and post treatment analysis and improvement was compared with the pre and post uric acid estimation for every month.

Statistical analysis:

Interpretation of the collected data was done using paired t test. Serum uric acid levels and GAQ 2.0 scores of pre and post treatment was compared.

RESULTS

The average age group of patient affected with gout is 47.6. Majority of patients were males (n=21; 70%) when compared to females (n=9; 30%). Further, 13.3% (n=4) of patients belonged to lower economic status, 80% (n=24) to middle economic status and 6.6% (n=6) to upper economic status respectively. Among the 30 cases studied 4 patients presented with classical acute gout, whereas 8 patients has involvement of monoarticular joint and the rest 18 patients had polyarticular joint involvement.

Table 1: Sociodemographic profile of patients (n=30)

Characteristics	Estimates
Age (years)	45.5±10.3
Sex	
Male	21 (70%)
Female	9 (30%)
Economic status	
Lower	4 (13.3%)
Middle	24 (80%)
Upper	2 (6.6%)

DISCUSSION:

This study, which is retrospective observational in nature, shows the effectiveness of homoeopathic treatment for Gout. Follow ups were collected and observed as a secondary data reserve. Serum uric acid levels and Gout Assessment Scores (GAQ 2.0) were compared between pre- and post-test values throughout a six-month period. Based on the individualization the totality of symptoms was collected and around 12 homoeopathic

remedies were prescribed. This shows an effective therapeutic use of homoeopathic remedies in reducing the serum uric acid levels as well as the GAQ 2.0 scores which explains the approach of individualized homoeopathic medicine towards pathological and physical well-being of the patients [Table 2 & 3]. The process of collecting the totality of symptoms and prescribing based upon the fundamental principles of homoeopathy makes the holistic system into a versatile treatment perspective.

Table 2: Before treatment After 6 months of treatment

	N	Mean	SD	N	Mean	SD
Serum uric acid	30	9.83	1.39	30	5.25	1.32
GAQ 2.0 scores						
Gout concern overall	30	287.5	69.54	30	109.6	40.98
Gout medication side effects	30	133	32.6	30	64.6	9.9
Unmet gout treatment need	30	133.6	16.6	30	45	15.9
Well-being during attack	30	396	68.79	30	86	9.7
Gout concern during attack	30	333.6	52.08	30	134.6	25.09

Table 3: Pre and Post treatment difference

	Mean	SD	SE	95% Confidence Interval		t
				Lower	Upper	
Serum uric acid	4.57	1.62	0.29	3.99	5.15	15.75
GAQ 2.0 scores						
Gout concern overall	177.83	48.8	8.92	159.9	195.67	19.93
Gout medication side effects	68.3	32.78	5.9	56.5	80.1	11.4
Unmet gout treatment need	68.6	22.74	4.15	60.3	76.9	16.53
Well-being during attack	310	69.6	12.72	307.4	312.5	24.37
Gout concern during attack	199	50.9	9.3	180.4	217.6	21.3

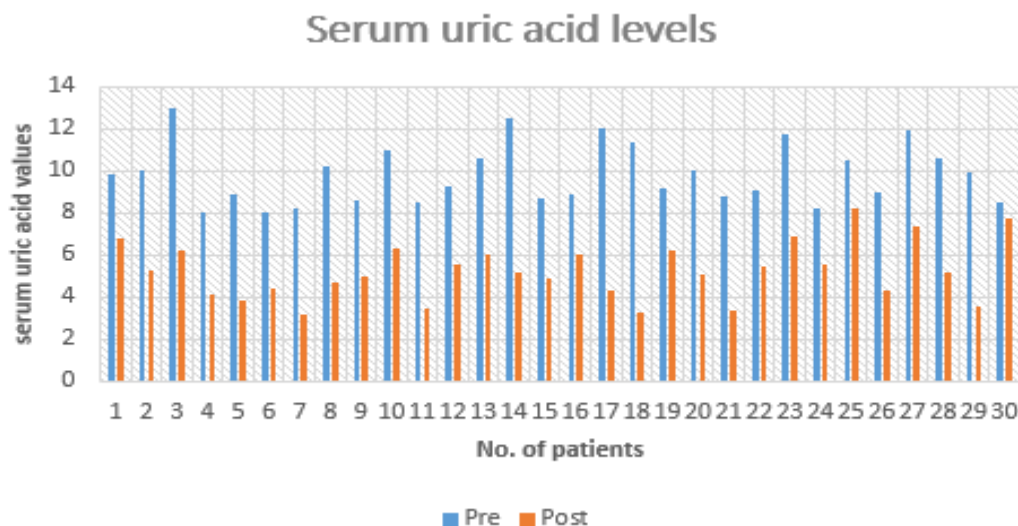


Figure 2: Comparison of pre and post treatment serum uric acid levels

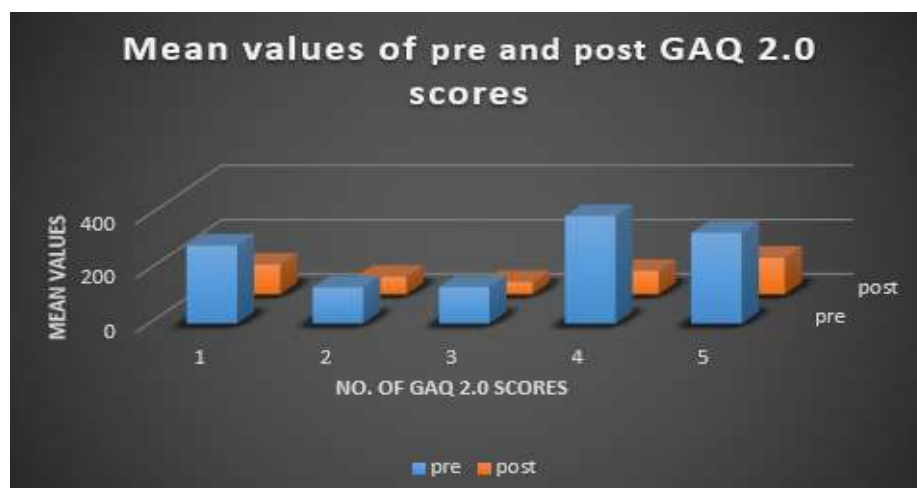


Figure 3: Comparison of mean values of pre and post treatment of GAQ 2.0 scores

A recent prospective observational trial on gout patients compares the baseline serum uric acid, GAQ 2 scores with values assessed after 3 months shows effective reduction on treating with homoeopathic medicines. Benzoic acid is the most frequent remedy prescribed there.⁽¹²⁾ In this current study colchicum autumnale was prescribed most based on individualization [figure 4]. Another observational study with 150 gout patients presented with both clinical and pathological improvement after the administration of individualized homoeopathic medicines. Affected age group of the study was 31-45 years which is almost similar to this current study ranges between 28-49 years. The improvement been observed for almost 83% of patients where there was the reduction in physical discomfort.⁽¹³⁾ Likewise in this current study the improvement is evidently depicted in graphical plot of figure 2 & 3 signifies positive

variation of serum uric acid levels and GAQ 2.0 scores. A placebo control study on hyperuricemia shown a statistically effective mean reduction in medicine group compared with controlled group especially in primary gout. ⁽¹⁴⁾ Most of the previous studies on gout were common among males than females including the data of this study with males (22) 73% and females (8) 27% shows its predominance whereas the recent report of global burden of disease (GBD) suggests females were becoming more affected than males over 195 countries. ⁽¹⁵⁾

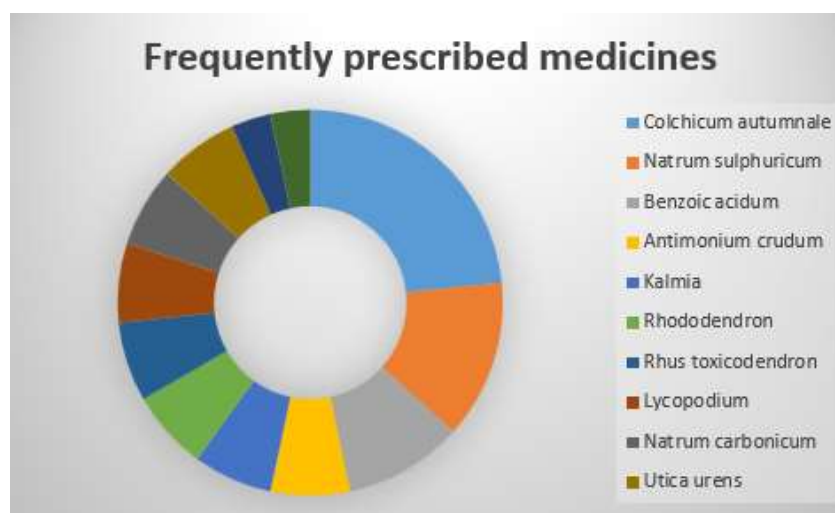


Figure 4: Frequently prescribed medicines

Table 4: Frequently prescribed medicines

S. No	Frequently prescribed medicines	N
1.	Colchicum autumnale	7
2.	Natrum sulphuricum	4
3.	Benzoic acidum	3
4.	Antimonium crudum	2
5.	Kalmia	2
6.	Rhododendron	2
7.	Rhus toxicodendron	2
8.	Lycopodium	2
9.	Natrum carbonicum	2
10.	Utica urens	2
11.	Causticum	1
12.	Sulphur	1

CONCLUSION:

This retrospective observational study of gout reveals that the individualized homoeopathic treatment has a strong impact for reducing the physical and pathological abnormality likewise enhancing the general well-being of the patient which in turn improves their mental health from the suffering. Thus the quality of life for gout can be enhanced by the well systemized homoeopathic treatment.

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