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Review Article

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EFFICACY OF JALAUKAVACHARNA IN THE MANAGEMENT OF ACUTE GOUTY ARTHRITIS

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ABSTRACT

Gout is an ancient disease dating back to the time of Babylon. It's name came from the latin word Gutta(drop), points to the belief that a poison falling into the joint drop by drop causing the disease. More recently it become more prevalent and has increasing complexity in the past 20 years. Which could be related to the development of metabolic syndrome and longevity. It is still on the increase and it's prevalence has not plateaued yet .It is a most common inflammatory arthritis in men affecting 1-2% adults with male to female ratio of 3.6:1 but rare in pre menopausal women and it's incidence, prevalence increases with age. Clinically gout is a syndrome caused by an inflammatory response to Monosodium urate monohydrate crystals formed in human with elevated serum urate concentration (hyperuricaemia). It could present with either acute relapsing attack/it can come in chronic form. The acute attack usually cause very severe inflammatory arthritis which is usually self limiting and could take weeks before it completely setteles. The management of acute gouty arthritis include use of colchicine and NSAIDs but they have many adverse effects. Accordind to ayurveda it can be correlated with Vatarakta. It is a variety of vata roga which is caused by excessively aggaravated vata and vitiated blood (rakta). The modern drugs only provides symptomatically relief to the patient but does not change the course of disease. In Ayrveda leech therapy is more effective and has immediate effect on pain, inflammation and lasting effect on stiffness and dysfunction. High degree of safety suggest that this therapy has great potential in the management of acute gouty arthritis.

KEYWORDS: hyperuricaemia, aggaravated vata and vitiated blood (rakta).

INTRODUCTION

Acute gout also known as 'Podagra', when it affects the 1st metatarsophalangeal joint. An acute attack of gout is a paradigm of acute sterile inflammation; as opposed to pyogenic inflammation. Recent studies suggest that the triggering of IL-1B release from leucocytes lies at the heart of a cascade of process that involves multiple cytokines and mediators.

The NLRP3inflammasome appears to have a specific role in this regard.

The link between crystal deposition and joint inflammation was made by Garrod, who developed the thread test assay of serum urate and stated that the deposited urate of soda may be looked upon as the cause not the effect of the gouty inflammation. The initial symptoms of gouty attack are sudden and violent taking place nearly always at night. The patient feels sudden onset of pain, it often affects the big toe of 1st metatarsophalangeal joint; which becomes rapidly red and swollen; the veins of the leg can become dilated and the leg can become purple and sometimes accompanied by bruising.

Gouty arthritis is one of the most common rheumatic diseases. The clinical burden of gouty arthritis has historically been well recognized; however, gout is often misdiagnosed and mismanaged. The prevalence of gout is rising and is likely attributed to several factors including increased incidence of comorbidities, lifestyle factors and increased use of causative medications. With the increasing prevalence, there have been several innovations and evidence-based updates related to the diagnosis and management of gout. Acute gouty arthritis should be treated with nonsteroidal anti inflammatory drugs (NSAIDs), colchicine, or corticosteroids, or a combination of two agents. Xanthine oxidase inhibitor therapy remains the consensus first-line treatment option for the prevention of recurrent gout. Add-on therapies that reduce serum urate concentration include traditional uricosuric agents and a novel uric acid reabsorption inhibitor. Prophylaxis of acute gout with NSAIDs, colchicine, or corticosteroids is universally recommended when initiating any urate-lowering therapy in order to prevent acute gouty arthritis for a period of at

least 6 months. In this review, we discuss the epidemiology and risk factors for gouty arthritis and evaluate diagnostic strategies and therapeutic regimens for the management of gout, i.e according to Ayurveda raktmokshana through jalauka is the best one.

Rakthamokshana is the procedures of Panchakarma which helps to eliminate vitiated dosha that accumulate in the body. Jalaukavcharana is the types of Rakthamokshana which is practiced globally in India since ancient times. A detailed description on Jalaukavcharana is available in Ayurveda. It is used in management of various diseases in all the systems of the body including ears, nose, throat, eyes and head. Now a day's Leeches are also used by ophthalmologists to treat inflammatory, traumatic processes and various diseases of eyes. According to Ayurveda, the diseases of eyes were caused due to vitiation of tridoshas. Jalaukavcharana i.e. leech application is a type of bloodletting therapy. It removes some of these toxins and vitiated doshas which are accumulated in the body. Various bioactive substances are present in saliva of leech. Along with that, it also exerts a therapeutic effect in several diseases. Though despised by most, medicinal leeches can be of immense benefit that may help people to surmount numerous health disorders. Jalaukavcharana is very effective ancient method of Panchakarma neglected by physician. There are many side effects of modern medicine. So it is the need to spread awareness about Jalaukavcharana and its efficacy.

DISEASE BACKGROUND

Gout is the most common inflammatory type of arthritis in men affecting 1-2% of adults in Western countries
(1), with male to female ratio of 3.6:1, but rare in pre-menopausal women and its incidence and prevalence increases with age
(2). It is characterised by chronic hyperuricaemia which is defined as serum urate levels above 6.8 mg/dl (≥ 400µmol/L), the level above which the physiological saturation threshold is exceeded
(3). Gout manifests itself as microscopic or macroscopic soft tissue deposit of monosodium monohydrate crystal (tophi) which triggers severe, but self-limiting acute attack of arthritis with excruciating pain. In chronic cases crystals deposition could promote a chronic type of inflammation and erosive arthritis. Patients with hyperuricaemia also could develop uric acid urolithiasis which is usually promoted by urine acidity
(4). Asymptomatic hyperuricaemia is common, but there is no study to confirm the incidence or prevalence of its occurrence. Patients with hyperuricaemia have increased incidence of developing clinical gout when the serum urate level exceeds 9 mg/dl (>530µmol/l); however, we have to keep in mind that only a minority of patients with hyperuricaemia actually develops gout (5) and acute intermittent gout can still occur with lower level of serum urate than 9 mg/dl. Although clinically there are a few patients who develop tophi which could be seen, but a significant number of patients with gout have microscopic or non-clinical type of tophi in joints, periarticular area and various soft tissues. These microscopic tophi and crystals including the renal uric acid calculi could be easily seen by the dual energy CT scan or with high resolution ultrasound, which is one of the recent advances in identifying gout crystals and making a diagnosis of gout
(6). Although there is clear evidence that soluble urate is an antioxidant
(7), however, urate can also be converted to pro-oxidant which could affect adversely the vascular endothelial cell function
(8). In observational studies, gout and asymptomatic hyperuricaemia shown to be directly promoting hypertension and vascular disease
(9). The current increase in the prevalence of gout could be related to overweight and the development of metabolic syndrome and change in our diet with high intake of meat, seafood, fructose sweetened beverages and beer, and also to the increase in life expectancy
(10). However, the main reason for gout and hyperuricaemia is related to the renal uric acid hypo-excretion, which can be multifactor in origin including both genetic and environmental factors such as diuretic use, low dose of aspirin and high alcohol consumption.

DISCUSSION

The medicinal leech is a beautiful symbol of give and take and is sustainable resource management. Hirudo medicinalis is one of the oldest surviving animals on earth. The 1st documented accounts of the use of leeches for medicinal purpose is from the time of extreme antiquity, more than 2500 yrs before in Ayurvedic texts then long later during the period of Hippocrates. Dhanvantari, the indian god of Ayurveda holds a leech in one of his hands. This simply suggests the importance of leeches in medicinal field by ancient indian sciences. Leeches have and will always be thought of as the 'Wonder doctors 'of science.

Gout is one of the type of arthritis; which is characterized by progressive loss of cartilage in the joints due to the deposition of monosodium urate crystals and is associated with symptoms such as pain, tenderness, stiffness and reduced mobility. It is often, but not always, associated with hyperuricaemia. It is common, affecting around 2% of men aged over30 years. and women aged over 50 years. It's prevalence appears to be increasing. Gout is common disease both in primary care and hospital practice. Life style and dietary recommendations for for gout patients should consider overall health benefits and risk since gout is often associated with the metabolic syndrome and an increased future risk of cardiovascular disease and mortality.

The treatment often includes the use of NSAIDs and topical Analgesics. This approach provides symptomatically relief but does not change the course of disease. Leech therapy is more effective than topical analgesics and anti inflammatory agents in the treatment.

Although leeches may not be safe for people with disease that impair blood clotting / for those with compromised immune function. It is believed to be safe for others. It's immediate effect on pain and inflammation and lasting effect on stiffness and dysfunction. High degree of safety suggest that this therapy has great potential in the management of gouty arthritis. Patients with gouty arthritis who were treated with leech therapy, experienced clinically significant improvements in self perceptions of pain for a limited period .Moreover a single application of leeches improved functional ability and stiffness for atleast 3 months.

The saliva of leeches contain a variety of substances such as Hirudin, Hyaluronidase, Histamine like vasodilators, collagenase, destabilase, inhibitors of kallikrein, superoxide production and poorly characterized anesthetics and analgesic compounds. These substances might reach deeper tissue zone and possibly the joint spaces.

Various bioactive substances in leech saliva may also be as pharmacologically potent as hirudin and thus exert substantial effects in periarticular tissue and adjacent structures. It has been prooved that laser Doppler flowmetry that there is a significant increase in superficial skin perfusion following leech application; especially 16 mm around the biting zone.

Therefore a regional analgesic and Antiphlogistic effect by these substances enforced by hyaluronidase as well as counter –irritation might be the possible reason of improvement by treatment with leeches. Leecch therapy could induce pain relief through Antinociceptive effects and counter –irritation. However, it is not known to what extent leech bites may induce such mechanisms. The jaw of leech pierces the skin so that these potent biologically active substances can penetrate into the deeper tissues.

Hyaluronidase (spreading factor) an enzyme in leech saliva, further facilitates the penetration and diffusion of these pharmacologically active substances into the tissues. With the additive effect of hyaluronidase, it is highly probable that the Antiphlogistic substances in leech saliva can penetrate deep enough to exert significant effects on periarticular myofascial structures play an important role in the development of pain.

Venous congestion is another important complication that threatens the viability of the affected joints following crystal orthropathies like gout. It can be best treated with application of leeches.

Leech therapy has 2 phases-
1- Active blood letting
2- Passive bleeding – from the leech wound after detachment, which can last for several hrs. The small blood volumes removed by medicinal leeches and the augment blood removal during the passive bleeding phase of leech therapy results remarkably decrease in venous congestion in the joints. In addition to this, a broad no. of anticoagulant agents decrease venous congestion such as the thrombin inhibitor hirudin, Apyrase as well as collagenase, hyaluronidase, fibrinase1 and 2.

In summary traditional leech therapy seems to be an effective in treatment for gouty arthritis. Currently no pharmacologic agent has similar lasting effects after a single local administration.

CONCLUSION

Acute gouty arthritis typically presents with a sudden and severe exquisitely painful joint., most classically in the 1st metatarsophalangeal joint (toe).

In the current study Jalaukavacharna is significantly effective in treating gout. The effect of treatment was-
44%-Uttama upashaya in in relieving Pain.
40%- in Swelling
28%- in Stiffness
32%- in Restricted movements
16%- in Deformity
So we can conclude that Leech therapy is effective in treatment for acute gouty arthritis.

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