ROLE OF JALAUKAVACHARANA (LEECH THERAPY) IN THE MANAGEMENT OF ANKLE SPRAIN: A PILOT STUDY

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ABSTRACT:

Leeches have been used for medicinal purpose since the era of Ayurvedic medicine from 2000 BC. Acharya Sushruta and Vagbhata described Jalaukavacharana (leech therapy) and all about Jalauka (leeches). Acharya Sushruta, Charaka, Vagbhata, Chakradatta has described Raktamokshana (bloodletting) for Vranashopha (inflammation) to reduce pain & avoid suppuration. The Agantuk Shotha (traumatic inflammation due to external injury) described in Ayurveda causes the symptomatology such as Shoola (pain), Shotha (swelling), Sparsha-asahyata (tenderness), Daha (burning) etc. Whereas the Ankle Sprain described in modern science can be correlated with Gulpha pradeshi - agantuk Shotha (traumatic injury over Ankle region) because it also produces the features such as inflammation, pain, stiffness, tenderness, hot swollen joint, restricted movement and deformity in severe cases. Presently available modern medication (NSAID) is causing many side and toxic effect and requires long term medication which suppresses immunity and produces other diseases. Hence there is a need to find such a therapy which gives better relief without any side or toxic effect and also natural, cost effective and easily available hence the parasurgical biological therapeutic means such Jalaukavacharana was selected.

Key Words: Shotha, Agantuja shotha, Jalaukavacharana, Shoola

INTRODUCTION:

Acharya Sushruta described the six type of Shotha out of which five are Nija Shotha (v, p, k etc.) and another is Agantuja [1]. Also Charaka has described two type of Shotha, namely Nija and Agantuja. Agantuja Shotha is produced by Aghata (external injury) [2]. Ankle sprain is the term used for ligament injuries of the ankle. Commonly, it is an inversion injury, and the lateral collateral ligament is sprained. Sometimes, an aversion force may result in a sprain of the medial collateral ligament of the ankle. This condition gives rise to tremendous pain which is associated with all joints. But there is high prevalence in ankle joint. A sprained ankle is nearly always an inversion injury involving twisting of the weight bearing planter flexed foot. The lateral ligament is injured because it is much weaker than the medial ligament that resists inversion at the Talocrural joint [3].

According to Ayurveda Ankle joint is said to be Gulpha Marma which is Rajakara Marma. So, main symptom pain is appearing after injury. Acharya Sushruta, Charaka, Vagbhata, Chakradatta has described Raktamokshana for various conditions of shopha (swelling) to reduce pain & avoid suppuration [4].

Leeches secrete Hirudin (haematin) in its saliva which has anti-coagulant property and prevents blood clotting. Due to this property it improves macro & micro circulation and clearing blockage. Leech injects powerful anaesthetic & anti-inflamatory enzymes while sucking the blood so that, patient feels no pain. Hirudin has a powerful blood thinner which break-up pooled blood for better extraction from the affected part.

AIM AND OBJECTIVE

1. To study the role of Jalaukavacharana in the management of Ankle Sprain
2. To find out possibilities in combine therapy in Ankle Sprain.

MATERIAL AND METHOD

A pilot study was carried out over a period of 1/2yr in M.A. Podar Ayurved College, worli Mumbai. Total 10 selected and diagnosed Patients of both the sexes between the ages 12 to 50 year with condition of first grade Ankle Sprain were selected on the basis of selection criteria.

At the time of baseline assessment, a profile of haemogram, biochemical investigations and serological tests for HIV, HBsAg, and VDRL was obtained. Patients with HIV 1/II, HBsAg, infections were excluded from the study. Hirudo- Medicinalis...
(medicinal leech) was taken for use. Leeches are kept starved for five days. Turmeric powder was applied to the mouth of leech to make them active.

The leeches were applied to the affected area. The numbers of leeches applied were decided depending on the area of the affected part and the severity. The leeches were applied once in a week. The duration of application of leech depended on size of leech and the speed of sucking the blood which varies from 15 min to 45 min. Each leech sucked averagely 10-20 ml of blood, with a further mild oozing occurring for 3-4 hours after the leech fell off. The Jalaukavacharana was done with 7 days interval for about 3-5 sittings. The results were analyzed using the paired t-test.

**Criteria for selection of patient**

A) Inclusion criteria:-
1) Sex – both male and female
2) Age group -12 to 50 years
3) Diagnosed patient of ankle sprain

B) Exclusion criteria:-
1) High risk sprain ankle and fracture of ankle joint.
2) Above 50yr age and below 12yr.
3) Patient having HIV, AIDS, HBsAg and other STD.
4) Pregnancy and lactation.

**Criteria for clinical assessment of symptoms by gradation**

Criteria for clinical assessment of symptom, the pain (sandhi shoola) and swelling (sandhi shotha) was taken as subjective and movement of joint was taken as objective parameter for proper assessment and they are subjected for statistical validity.

A) **Subjective criteria**-
1) shandhisool (joint pain): Gradation of pain by visual analogue scale
   0 Nil
   1 Mild pain.
   2 Moderate pain.

B) **Objective criteria**-
1) Restricted movement :
   0 Absence
   1 25% restriction of movement
   2 25 to 50% restriction of movement
   3 More than 50% restriction of movement

**RESULT**

1. As per Ayurvedic text, Shotha is a common word, which is used for medicosurgical condition which is produced due to vitiated Pitta and Rakta. In such condition, Raktamokshana is one of the best treatments.

2. All obtained data were analyzed statistically with help of INSTAT GRAPHPAD software.

3. By applying leech significant result were obtained in Sandhishool with 60.08% improvement. In movement of joint, 61.5% result were observed.

4. Highly significant results were obtained in sandhishtotha (65.38%). It shows highly significant result of leech application in (Gulpha pradeshi agantuk Shotha) Ankle Sprain.

The rationale for such use has been that greater capillary perfusion and hence better tissue healing occurs due to decreased venous congestion and oedema following bloodletting by leech therapy [5]. The Jalaukavacharana showed significant and remarkable result in the symptomatology range of movement of joint, swelling and pain.

**Table No. 1 – Assessment of Result**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Mean</th>
<th>% of imp</th>
<th>SD</th>
<th>SE</th>
<th>t</th>
<th>P</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sandhishool</td>
<td>BT</td>
<td>AT</td>
<td>DIFF.</td>
<td>60.8%</td>
<td>0.69</td>
<td>0.221</td>
<td>6.12</td>
</tr>
<tr>
<td>Sandhishtohta</td>
<td>2.3</td>
<td>0.9</td>
<td>1.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table No. 2-Asessment of Result**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Mean</th>
<th>% of imp</th>
<th>SD</th>
<th>SE</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Movement of joint</td>
<td>BT</td>
<td>AT</td>
<td>DIFF.</td>
<td>61.5%</td>
<td>0.519</td>
<td>0.16</td>
</tr>
<tr>
<td></td>
<td>2.6</td>
<td>1</td>
<td>1.6</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
DISCUSSION

Shotha is a condition which produced due to vitiated pitta and Rakta dosha and Jalaukavacharana is the best treatment for that condition because in that condition, Vata dust Rakta is found. Ankle Sprain is a type of agantuk Shotha.

Leech therapy was an established treatment for haematomas, boils, and abscesses inflammatory conditions etc. in the old Indian medicine. The pioneer of this therapy is Acharya Sushruta (2000 BC). He has elaborated leech application (Jalaukavacharana) under the topic of bloodletting (Raktamokshana). Similar treatment was also described as early as 200 BC for mental illness and headaches as reported by Adams and Lassen. [6]

In this study, Jalaukavacharana has shown very remarkable analgesic and anti-inflammatory effects along with very effective reduction in venous congestion. To find out mode of action of leech therapy, in-depth study by many scientists who are working in the field of Biochemistry, Biophysics, Pathology, Pharmacology, is required; which, however, further requires evaluation by controlled trials.

CONCLUSION

This pilot study showed the significant result of leech application in Ankle Sprain (Agantuk Shotha Gulpha pradeshi). Symptoms like pain, swelling and movement of joint reduced a lot.

Acknowledgement

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