



**ROLE OF JALAUKAVACHARAN IN MANAGEMENT OF DEEP VEIN THROMBOSIS
(DVT) I.E. (PHLEBOTHROMBOSIS)**

¹*Dr. Maheshkumar Nilkanth Chaudhari M.S. (Shalya-Tantra), Ph.D. (Shalya-Tantra) Pune and ²Dr. Murdula Maheshkumar Chaudhari

¹Professor and HOD of P.G. Dept. of Shalya-Tantra, Nitishwar Ayurved Medical Collage, Muzaffarpur-842002 (Bihar).

²Pancha-Karma Practitioner.

***Corresponding Author: Dr. Maheshkumar Nilkanth Chaudhari**

Professor and HOD of P.G. Dept. of Shalya-Tantra, Nitishwar Ayurved Medical Collage, Muzaffarpur-842002 (Bihar).

Article Received on 24/08/2018

Article Revised on 14/09/2018

Article Accepted on 04/10/2018

ABSTRACT

DVT is one of the commonest disorder in day to day surgical practice. DVT is blood born (रक्तज) as well as Siragat Vyadhi (venous disease), more seen in people who are working in standing position for long time and in patients in bed for a long time after major surgical procedures. Jalauka is a nature's gift for blood borne diseases & best blood letting method for localized condition. Acharya Vagbhatta has mentioned the use of Jalauka in the treatment of clotted blood in deeply situated veins in his scripture Ashtang Samgrah, Sutra-Sthan adhaya 35 - Shlok no. 10 & 11 clearly. Hirudin is in the saliva of leech is very effective to dissolve the blood clot in deeply situated veins. Leech therapy has been recommended for the treatment of various diseases in Ayurvedic texts. This research paper outlines & is focused on the applicability of leech therapy as explained in Vagbhatta, specifically in DVT & this research study proved that Jalauka is very beneficial in DVT. Such leech therapy is discovered by our Acharyas, but most of the miracles of this treatment need clinical trials for the knowledge of the society at large & to be studied in detail for their potential usefulness.

KEY-WORDS: DVT (Deep vein thrombosis), Leech therapy, Hirudin, pulmonary embolism.

INTRODUCTION

ग्रंथितं तु जलौकोभिरसृग्व्यापि सिराव्यधैः / अ.सं.- सु.स्था.- 35-10

प्रच्छानं पिन्डीते वा स्यादवगाढे जलौकसः // अ.सं.- सु.स्था.- 35-11

Granthitam tu jalaukobhirasrugvyapi siravyadhaih / A.S.- S.S.-35-10

Prachchnam pindite va syadavgadhe jalaukasah // A.S.- S.S.-35-10

Meaning

The great Acharya Vagbhatta has described in his scripture, Ashtang Samgrah, Sutra-Sthan that if blood is deposited abnormally in the vein, then that clot should be dissolved by Jalauka application on the skin over the area affected in considerable number & if the impure blood is in the whole body, then that should be drained by vein rupture (sira-vedh) & moreover, if impure blood is deposited superficially then by scrapping & if blood clot situated in deep vein, then there should be use of Jalauka to dissolve the deep vein blood clot.

'Hirudin' is the main chemical in the secretion of leeches that allows them to suck out blood freely from the body after they are applied to the skin attach to the skin.

Desirudin & lepirudin are genetically engineered recombinant forms of hirudin.

Leech bites do not hurt – since they release an anaesthetic material when they sink their mouth into the skin.

- Hirudin is a naturally occurring peptide in the salivary glands of blood –sucking leeches (such as Hirudo medicinalis) like anticoagulants, anaesthetics, vasodilators and prostaglandins properties.

- Hirudin is a powerful anticoagulant. It is an inhibitor of thrombin (Thr) which converts fibrinogen to fibrin during blood clotting. Thrombin is produced upon enzymatic cleavage of prothrombin (Pro Thr).

The main predisposing factors of DVT are- 1) stasis, 2) increased blood coagulability & 3) injury to the vessel wall.

DVT occurs more often after operations, any debilitating illness, immobility for a considerable period, child birth & some sort of local trauma.

The thrombus may start in a venous tributary of a main vein.

The calf (पिण्डिका) is the most frequent site of thrombosis. From here thrombus extends in a serpentine fashion into the main deep veins, where a portion may break off, dislodge & pass into pulmonary system to cause pulmonary embolism. That is a life threatening condition.

Patients with suspected deep venous thrombosis should be evaluated & treated properly in order to lessen the propagation of the thrombus to limit the damage to the venous valves and to reduce the risk for pulmonary embolism.

Leeches have been in use in medicine for over 2,500 years. They were more popular in earlier times because it was widely thought that most diseases were caused by an excess of blood.

Leeches are effective in increasing blood circulation & breaking up blood clot.

Mechanism & action of Hirudin

The anticoagulant mechanism of action of recombinant hirudin (CGP 39393) in plasma. Hirudin are in keeping with the notion that inhibition of the thrombin – mediated amplification reactions in blood coagulation is a very efficient way to delay or inhibit completely thrombin generation.

Similar to antithrombin, the anticoagulant activity of hirudin is based on its ability to inhibit the procoagulant activity of thrombin. Hirudin is the most potent natural inhibitor of thrombin. Unlike antithrombin, hirudin binds to and inhibits only the activated thrombin, with a specific activity on fibrinogen.

Direct interaction of hirudin with both the catalytic site and the anion binding exosite of thrombin probably accounts for its potent inhibition of all thrombin mediated reactions and this inhibition is equipotent towards free & fibrin bound thrombin.

Hirudin acts directly on thrombin rather than through other clotting factors. The mechanism of Hirudin – thrombin appears to be unique.

Objectives

- To evaluate the efficacy of Jalauka in DVT.

Hypothesis

According to the Ayurvedic scripture & traditional use of Jalauka in Raktaj as well as pittaj diseases & supportive information of modern science. The hirudin, which is the main chemical of Saliva of Jalauka has property of anticoagulant, so use of Jalauka should be beneficial in DVT.

Scope & Significance

In modern science, the general treatment is LMW Inj. Heparine (3000-7000 IU) S.C. given but it is acting all over the body & have some generalised complications like Thrombocytopenia, bleeding disorders, severe hypertension (risk of cerebral haemorrhage), threatened abortion.

But because of the application of Jalauka, has no side or adverse effect as heparine, so use of Jalauka has great scope in use of DVT.

MATERIAL AND METHOD

Material – Non-poisonous fresh Jalauka. (Nirvish)

Method – Locally & daily application of 4 to 5 Jalauka nearer & over the thrombus site (on calf region) for 14 days.

- 30 patients were taken for this study & sign, symptoms
- before & after treatment observed.

Inclusion Criteria

- Clinically & venous color Doppler study proved DVT patient in Calf region.
- age = 20-60 years.
- Ready to give voluntary consent.

Exclusion Criteria

- Any bleeding disorders like thrombocytopenia, etc.
- DM, Hypertension, any complicated medical disease.

Data Analysis

Total 30 patients selected for this study.

Parameter –1) Clinical - Pain,

- Swelling
- Tenderness

2) Laboratorial - Blood investigations – B.T., C.T. & P.T. (INR) & other routine investigations.

3) Radiological - Venous colour Doppler study (To detect recanalisation or parallal flow or complete dissolution of thrombos on 1st & 15th day).

1) Age (mean) – 45 year

(Minimum-Maximum) = 20 year – 60 year

2) Sex-

Male	08	26.64%
Female	22	73.26%
Total	30	

3) **Pain** – (Subsided after Jalaukavacharan for 14 days) -
Mild = +
Moderate = ++
Severe = +++

Pain	Gradation	%
Nil	23	70 %
Mild (+)	05	16.65%
Moderate (++)	01	3.33%
Severe (+++)	01	3.33%
Total	30	

4) **Swelling** - (Subsided after Jalaukavacharan for 14 days) - Mild = +
Moderate = ++
Severe = +++

Swelling-	Gradation	%
Nil	23	76.59%
Mild (+)	03	10%
Moderate (++)	03	10%
Severe (+++)	01	3.33%
Total	30	

5) **Tenderness** - (Subsided after Jalaukavacharan for 14 days) - Mild = +
Moderate = ++
Severe = +++

Tenderness-	Gradation	%
Nil	28	93.24%
Mild (+)	00	--
Moderate (++)	01	3.33%
Severe (+++)	01	3.33%
Total	30	

6) **Complete dissolve of thrombus or Recanalisation**
(After Jalaukavacharan for 14 days)

Complete dissolve	Recanalisation / Partially dissolve	No Effect	Total
15	14	01	30
50%	46.66%	3.33%	

RESULT

1) Mean value of age of the DVT patient is 40 years.
2) Females are more sufferer than males, the female – male % are 73.36, 26.64 respectively.
3) Pain is totally decreased in 70% of patients.
4) Swelling is also totally decreased very early in 76.59% of patients.

5) Tenderness is subsided dramatically very quickly due to blood letting. Total 93.24% cases get 100% relief from tenderness.

6) Total 50% of patients completely dissolved the thrombus & 46.66% patients recanalise or partially dissolved the thrombus on the 15th day.

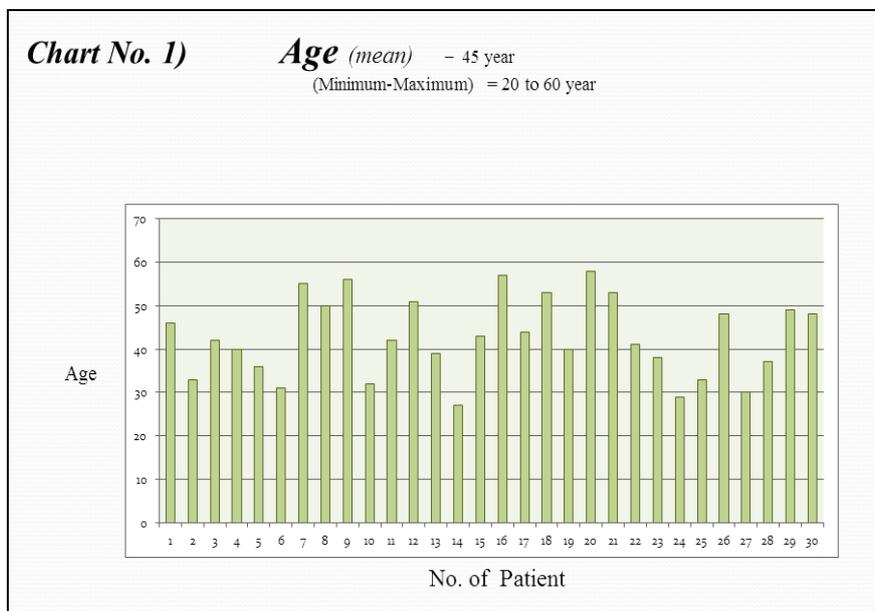


Chart No. 2) According to Sex-

Male	08	26.64%
Female	22	73.26%
Total	30	

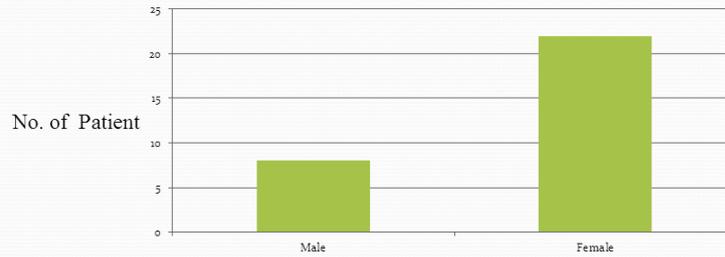


Chart No. 3) Pain – (Subsided after Jalaukavacharan for 14 days)

Pain	Gradation	%
Nil	23	70 %
Mild (+)	05	16.65%
Moderate (++)	01	3.33%
Severe (+++)	01	3.33%
Total	30	

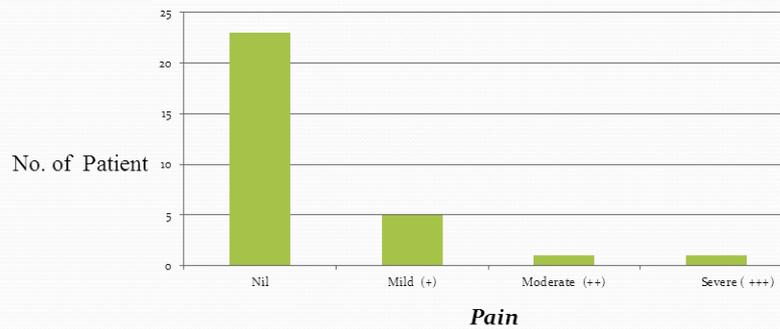


Chart No. 4) Swelling – (Subsided after Jalaukavacharan for 14 days)

Swelling-	Gradation	%
Nil	23	76.59%
Mild (+)	03	10%
Moderate (++)	03	10%
Severe (+++)	01	3.33%
Total	30	

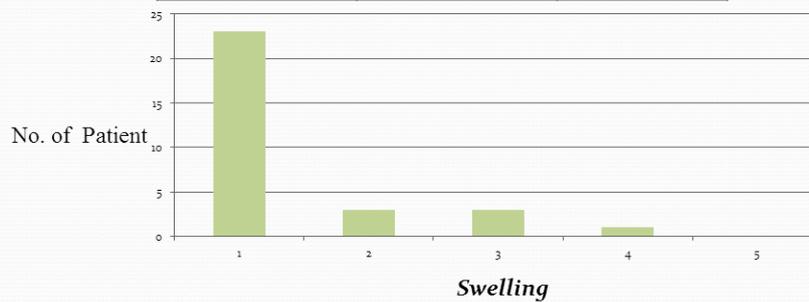
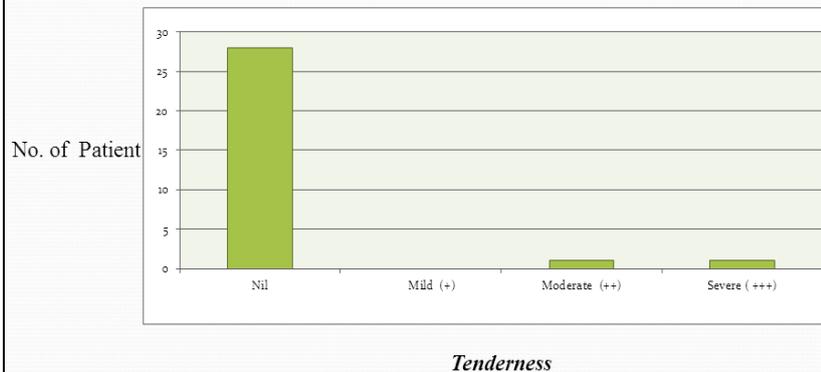


Chart No. 5) Tenderness –

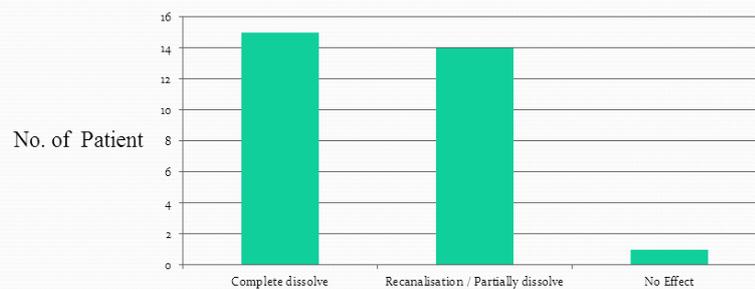
(Subsided after Jalaukavacharan for 14 days)

Tenderness-	Gradation	%
Nil	28	93.24%
Mild (+)	00	--
Moderate (++)	01	3.33%
Severe (+++)	01	3.33%
Total	30	

**Chart No. 6) Complete dissolve or Recanalisation of thrombus –**

(After Jalaukavacharan for 14 days) –

Complete dissolve	Recanalisation / Partially dissolve	No Effect	Total
15	14	01	30
50%	46.66%	3.33%	

**DISCUSSION**

Of course, there is no doubt left behind regarding use of Jalauka in DVT but associate treatment is also mandatory like-

- Leg elevation above the level of the heart is quite effective,
- Use of elastic stockings to avoid recurrence,
- Nidan-Parivarjanam- To avoid the continuous standing job.
- Bed rest during Jalaukavacharan & after the treatment till DVT is over.
- Continuous Jalaukavacharan decreases the pain, swelling & tenderness within 6-7 days.
- Thrombus dissolve partially as well as re-canalise the venous flow with in 7 days & completely dissolves with in 14 days by continuous applying the Jalauka.

Therapeutic properties of Hirudin Medicinal leech venom

Hirudin exemplifies antithrombin anti-coagulants. It is a peptide of 65 amino acids with three disulfide bonds and is derived from the saliva of the medicinal leech. Hirudin forms a biomolecular complex with thrombin via its acidic C- terminus & there by prevents the activity of thrombin.

Hirudin has been produced synthetically and used in the treatment of deep vein thrombosis and for coronary angioplasty reparation. A topical cream manufactured from hirudin is used to shrink haematomas caused by musculo-skeletal injuries. Desuridin, is effective in the treatment of heparin induced thrombocytopenia. A number of derivatives of hirudin are available including hirudin, a synthetic C- terminal peptide fragment of

hirudin, hirulog (bivalirudin – 20 amino acid peptide), a derivative of hirugen and Argatroab (heterocyclic peptidomimetic).

Interpritaion & conclusion

- Jalauka is very beneficial in DVT & proved with it's efficacy by modern science also.
- Jalauka can be used anywhere in the body where blood is clotted.
- Use of Jalauka in DVT has great significance & have no side or adverse effect, so we can use Jalauka in DVT safely.

Financial support and sponsorship – Nil.

Conflicts of interest – There is no conflicts of interest.

REFERENCES

1. Ashtang Samgrah Saroj Hindi Commentary, Part-1, Jalauka Vidhiadhyay, Sutra-Sthan, Shlok no. 10 & 11. Ravidatta Tripathi, Chaukhambha Sanskrit Pratishtan, Edition – Reprint 2003, P.N. 604.
2. Sushruta Samhita – Sutra Sthan – Dr. Ambikadatta Shastri, Chaukhambha Sanskrut Sansthan, Varanasi – 11th edition 1997.
3. A concise textbook of Surgery – S. Das, Disease of the veins, 3rd edition (Reprint) Feb. 2002, P.N.213.
4. Sarth Vagbhat – Author – Dr. Ganesh K. Garde, 1st edition, Reprint 2003, Anmol Prakashan, Pune.
5. Kaur Rimpalijeet, Chhabra shaily, singh Amitabh - Role of Ayu. Medicine and leech therapy in management of dep vein thrombosis: A case study- Journal of Biol. Sci. opin. 2015; 3(2): 87-90
6. Handbook of Biologically Active peptides- by Cristine Beeton, II nd edition-2013.