



EXPLORING THE EFFICACY OF AYURVEDA IN ALCOHOLIC LIVER DISEASE: A CASE STUDY

Acharya Manish¹, Dr. Gitika Chaudhary^{2*}, Dr. Richa³, Dr. Suyash Pratap Singh⁴, Dr. Priyank Sharma⁵,
Dr. Manjeet Singh⁶, Dr. Tanu Rani⁷

¹Director, Meditation Guru, Jeena Sikho Lifecare Limited, India.

²Senior Consultant, General Surgeon, BAMS, PGDIP, PGDGS, MS (Ayurveda), Jeena Sikho Lifecare Limited, India.

³Senior Research officer, BAMS, PGDIP, CICR, CAIM, CMW, Jeena Sikho Lifecare Limited, India.

⁴Medical Superintendent, BAMS, PGDIP, DNYT, CCMC, Jeena Sikho Lifecare limited Hospital Derabassi, Punjab, India.

⁵Consultant, BAMS, EMS, Jeena Sikho Lifecare limited Hospital Derabassi, Punjab, India.

⁶Consultant, BAMS, PGDIP, ACLS, CCDN, CICR, CAIM, Jeena Sikho Lifecare Limited Hospital, Derabassi, Punjab, India.

⁷Research Associate, BAMS, Jeena Sikho Lifecare Limited, India.



*Corresponding Author: Dr. Gitika Chaudhary

Senior Consultant, General Surgeon, BAMS, PGDIP, PGDGS, MS (Ayurveda), Jeena Sikho Lifecare Limited, India.

Article Received on 11/07/2025

Article Revised on 02/08/2025

Article Accepted on 21/08/2025

ABSTRACT

Liver is an important gland in human body which detoxifies various metabolites, synthesizes proteins and produces biochemicals necessary for digestion. Alcoholic liver disease could be due to alcohol consumption for long term, fatty liver, alcoholic hepatitis, and chronic hepatitis with liver fibrosis or cirrhosis. This condition can be correlated with *Yakrit Vriddhi* or *Yakritdalyodara*. *Madya* causes vitiation of *Pitta* and *Rakta* and leads to *Yakrit Vriddhi*. This case study is a 70-year old male, presented with abdominal pain, abdominal heaviness and numbness in bilateral lower limb. Treated with *Ayurvedic Shamanoushadhis*, *Panchakarma* therapies along with diet & lifestyle management. This helped in improvement of signs and symptoms, decrease in SGPT, SGOT, Bilirubin levels.

KEYWORDS: Alcoholic liver disease, *Yakritdalyodara*, *Yakrit Vriddhi*, *Shamanoushadhis*, *Basti*.

INTRODUCTION

Chronic alcohol consumption leads to liver damage, a condition stated as Alcoholic liver disease. Alcohol after consumption, undergoes metabolic changes and acetaldehyde is formed which damages the liver. Initially the liver cells get studded with fat droplets and leads to inflammation of the liver called Alcoholic hepatitis. Alcoholic Liver Disease (ALD) involves fatty liver, alcoholic hepatitis, chronic hepatitis, and liver cirrhosis.^[1] It accounts for 20%-50% of the prevalence of liver cirrhosis.^[2] According to *Ayurveda*, *Ranjana* of *Rasadhatu* is the function of *Yakrit*^[3] and *Moolasthana* of *Yakrit* as *Raktavaha srotas*.^[4] *Pitta* and *Rakta dhatu* has *Ashryashraye bhava*. And both have almost same qualities^[5] *Madya* has *Amla*, *Ushna*, *Laghu*, *Tikshna*, *Sukshma*, *Vyavayi*, *Ruksha*, *Vikasi* and *Vishada guna*.^[6] It vitiates *pitta* and *Rakta* and causes *Yakrit Vriddhi*.

CASE REPORT

A 70 year old male, presented with abdominal pain, abdominal heaviness and numbness in bilateral lower limb at Jeena Sikho Lifecare Limited Hospital, Derabassi, Punjab, India.

Past Medical History

- Known case of hypertension, not on treatment.

Surgical History

- Hip replacement – twice
- Patellar repair

Addictions

- Chronic alcoholic

Allergies

- No known drug or food allergies

Family History

- Non-contributory

Investigations

Parameter	Value	Unit
Date	28/07/2023	—
Na ⁺	130	mmol/L
Cl ⁻	110	mmol/L
Bilirubin – Total	3.7	mmol/L
SGOT	125	IU/L
SGPT	71	IU/L

Table 1: On Examination.

General Examination:	Ashtasthana Pariksha:
Pulse: 82/min	Nadi: PittaKaphaja
Blood pressure: 150/90 mm of hg	Mala: Vibandha
Weight: 70 kgs	Mutra: Peetavarna
CVS: S1S2 heard normal	Jivha: Saama
CNS: Conscious, Oriented	Kshudha: Prakrit
RS: AEBE Clear	Sparsha: Anushnasheeta
P/A- Tenderness over right Hypochondriac region	Drika: Prakrit
	Akriti: Madhyam

Table 2: Treatment.

1.8.23 (On Admission)	10/8/23 (On Discharge)
<ul style="list-style-type: none"> Liv DS cap 2 BD (Adhobhakta with koshna jala) Trivritta avaleha ½ tsf HS (Nishikala with koshna jala) Dhatuposhak Vati 2BD (Adhobhakta with koshna jala) 	<ul style="list-style-type: none"> DS Powder ½ tsf HS (Nishikala with koshna jala) Trivritta avaleha ½ tsf HS once a week (Nishikala with koshna jala) GE Liv Forte 20ml BD empty stomach (Pragbhakta with samamatra koshna jala) Arogya vati 2BD (Adhobhakta with koshna jala) Liv DS cap 1BD (Adhobhakta with koshna jala)
12/9/23 (1 st follow up)	11.10.23 (2 nd follow up)
<ul style="list-style-type: none"> DS Powder ½ tsf HS (Nishikala with koshna jala) Trivritta avaleha ½ tsf HS twice a week (Nishikala with koshna jala) GE Liv Forte 20ml BD empty stomach (Pragbhakta with samamatra koshna jala) Arogya vati 1BD (Adhobhakta with koshna jala) Liv DS cap 1 BD (Adhobhakta with koshna jala) Amlapittahar churna ½ tsf BD (Pragbhakta with koshna jala) 	<ul style="list-style-type: none"> Arogya vati 2BD (Adhobhakta with koshna jala) GE Liv Forte 20ml BD empty stomach (Pragbhakta with samamatra koshna jala) Liv DS cap 1BD (Adhobhakta with koshna jala) Amlapittahar churna ½ tsf BD (Pragbhakta with koshna jala)
7.11.23 (3 rd follow up)	4.12.23 (4 th follow up)
<ul style="list-style-type: none"> Yakritshothahar vati 2 BD (Adhobhakta with koshna jala) Arogya vati 2 BD (Adhobhakta with koshna jala) DS Powder ½ tsf HS (Nishikala with koshna jala) Shivagutika 2 BD (Adhobhakta with koshna jala) GE Liv Forte 20ml BD empty stomach (Pragbhakta with samamatra koshna jala) 	<ul style="list-style-type: none"> Amlapittanashak cap 2 BD (Adhobhakta with koshna jala) Arogya vati 2 BD (Adhobhakta with koshna jala) GE Liv Forte 20ml BD empty stomach (Pragbhakta with samamatra koshna jala) Liver pitta shuddhi 1-2 tab (Adhobhakta with koshna jala) Onco blaze churna ½ tsf BD (Adhobhakta with koshna jala) Liv DS cap 1 BD (Adhobhakta with koshna jala)
9.3.24 (5 th follow up)	8.4.24 (6 th follow up)
<ul style="list-style-type: none"> Arogya vati 2BD (Adhobhakta with koshna jala) DS Powder ½ tsf HS (Nishikala with koshna jala) Shivagutika 2 BD (Adhobhakta with koshna jala) GE Liv Forte 20ml BD empty stomach (Pragbhakta with samamatra koshna jala) 	<ul style="list-style-type: none"> GE Liv Forte 20ml BD empty stomach (Pragbhakta with samamatra koshna jala) Yakritshotha har vati 2 BD (Adhobhakta with koshna jala) Sama vati 2 BD (Adhobhakta with koshna jala) Immune plus syrup 20ml BD (Adhobhakta with samamatra koshna jala)
4.5.24 (7 th follow up)	
<ul style="list-style-type: none"> Yakritshotha har vati 2 BD (Adhobhakta with koshna jala) Nervine tonic 20ml BD (Adhobhakta with samamatra koshna jala) 	

Panchakarma Therapies: IPD ON 1/8/23 for 10 days
Matrabasti punarnavadi+ *Bhumiamalaki siddha* oil
Udarbasti with *Dhanwantaram* oil
Shirodhara with *Brahmi* oil on alternate day
Parishek with *Dashmool kwath* on alternate day

Diet

To Avoid: Avoid the following:

- Wheat & Rice
- Packed food
- Refined food
- Dairy food/Animal food
- Avoid drinking tea/coffee
- Never eat after 8PM

First thing in the morning

1) Chew 2 cloves (*long*) and 2 crushed garlic (*lehsoon*).

Brunch: (9:00 am)- Fruits (whose seeds cannot be taken out) eg. Pomegranate, Guava, Tomato, Cucumber + Fermented Millet Shake.

Sprouts (11:00 am) (5 different kinds of sprouts) + Red Juice + Almonds (4-5) (Soaked)

Black grams, white grams, black horse grams (*kulthi*), moong whole & peanuts with added onions, *amla*, beetroot, ginger, tomato and lemon and rock salt (minimal)

Minimum amount to be consumed = 150 gms

Lunch (12:30pm-2:00pm)

Alkaline Water: - 3-4 time a day (1 ltr)

Coconut Water

Turmeric Water

Living Water

Green Juice (4:00pm) 100-150 ml

Ingredients: Curry Leaves (10), *Ajwain* Leaves (5), *Giloy* Leaves (5), *Alovera* (2 inch), *Neem* Leaves (2), *Tulsi* (5), *Dhania*, *Pudina*, *Paan* (1/2)

Dinner: (6:00PM)

1. Plate-1-Salad

2. Fermented millets with five different leaves (*Dhania*, *Pudina*, *Peepal*, *Kari Patta* and *Tulsi*) can be prepared in

chutney form with addition of onion, garlic, tomato and ginger with green chilli.

Drinks

2 liters of hot water sipping throughout the day, two times DAP tea.

Herbal Tea

2 Cloves, 5 *Ilaichi*, 25 Black Pepper Seeds, 2 Small Finger Length Of *Daal Chini*, Spoon Of *Sauf* with Continuous Pouring Of Hot Water Throughout The Day (750 ml per day)

Alkaline water

750 ml to be prepared and consumed consisting of ½ Cucumber (non-peeled) cut into 4 parts, ½ cut lemon, 1 little finger sized Ginger, 1 little finger sized Raw Turmeric, 1 Tomato (non-cut) 3 Green Chilli with stem, *Dhania* leaves, *Pudina* leaves and *Tulsi* (750 ml per day)

Any other Green tea and Black tea can be consumed but no added Milk and Sugar.

Physical Activity: 90-minutes exercise daily (preferably during sunrise)

Sunlight: Sit in sunlight for at least 1 hour in the morning and 1 hour in the evening with foot soaked in lukewarm water as advised with chanting of LUM, VUM, RUM, YUM, HUM, OM, AUM with fingers in *Gyan mudra* pose.

Special Instructions

- Practice deep breathing exercises (Pranayama) for 40 mins daily
- Eat and drink within a bracket of 08 hours (for eg. if you start your first meal in the morning at 10 A.M, then finish your dinner by 6 P.M).
- Fast once a week on just coconut water.
- 1 glass of luke warm water added with 1 spoon *Haldi* powder, 1 lemon with 1 pinch of black pepper (freshly grated to be consumed four times a day).
- Perform oil pulling every-day.

Table 3: Observation: Investigations on Follow UPS.

Investigation	01/08/2023	09/08/2023	10/10/2023	Nov/2023	02/12/2023	02/01/2024	08/03/2024
SGOT (Normal: 0–40 IU/L)	93.98	69.93		63		55	63
SGPT (Normal: 0–40 IU/L)	75.24	65.18		48			35
ALP (Normal: 44–147 IU/L)	152.98	119.13					
Albumin (Normal: 3.4–5.4 g/dL)	3.25	3.47					
Sr. Amylase (Normal: 25–125 U/L)			279	248	245		
Sr. Lipase (Normal: 10–140 U/L)			136	86	98		
Indirect Bilirubin (Normal: 0.2–0.7 mg/dL)					0.6	0.6	0.4
Direct Bilirubin (Normal: 0.1–0.3 mg/dL)							0.2
Globulin (Normal: 2.0–3.5 g/dL)					2.8	3.1	

Date	Scan Report
02/12/2023	CECT Abdomen – Chronic liver parenchymal disease , dilated common bile duct with mild central dilatation of IHBR. Changes of subacute cholecystitis , bilateral renal cortical cysts (Type I Bosniak), mild enlargement of prostate gland .
08/03/2024	USG Whole Abdomen – Chronic Liver parenchymal disease , obstructive biliopathy with dilated CBD and GB showing sludge formation – likely distal CBD stricture .

Table 4: Observation of Vitals and Symptoms.

	01/08/2023	12/09/2023	09/11/2023	04/12/2023	08/04/2024
Pulse	82/min	Pulse-84/min	Pulse-80/min	Pulse-76/min	Pulse-92/min
Blood pressure	150/90 mm of hg	130/80 mm of hg	130/70 mm of hg	140/80 mm of hg	150/90 mm of hg
Weight	70kgs	62 kgs	58 kgs	58 kgs	56 kgs
Abdominal Pain	++++	+++	+++	+	-
Abdominal heaviness	++++	+++	+++	++	-
Numbness in bilateral lower limb	++++	+++	+++	++	-

DISCUSSION

Madya gunas are *Amla*, *Ushna*, *Laghu*, *Tikshna*, *Sukshma*, *Vyavayi* *Ruksha* *Vikasi* and *Vishada* *guna*, which are similar to *Visha Guna* and it causes *Pittaprakopaka* and causes *Rakta Dusti*. As *Yakrit* is *Moolasthan* of *Rakta* and *Ranjaka Pitta* it leads to *Yakrit roga/Yakrit vriddhi/ Yakritdalyodara*. It can be compared to Alcoholic Liver disease.

Samprapti Ghatak

Dosha: Pitta

Dushya: Rasa, Rakta, Mansa

Srotas: Rasavaha, Raktavaha, Annavaha

Srotodushti: sanga, Atipravritti, Vimargagamana

Agni: Jatharagni, Dhatvagni

Udbhavasthan: Amashaya

Vyaktasthan: Twaka, Netra

Adhishthan: Rakta, Mansa.

Chikitsa in this patient possess properties of *Pittashamana*, *Raktaprasadana*, *Deepana*, *Pachana*, liver tonic.

1. Amlapittanashak powder- contains Shunti, Maricha, Pippali, Amalki, Bibhitika, Haritiki, Musta, Sukshmaila, Tvak Patra, Vidanga, Bid Lavana, Lavanga, Trivrita, Sharkara. Used in indigestion, acidity, liver, GERD, vomiting, nausea.
2. Arogya Vati^[5] contains ingredients like *Shatavari* *Ashwagandha*. It also helps in stress reduction. It promotes digestive health. Good for weight management by fastening metabolism. *Arogyavardhini vati* possesses mainly *Katu*, *Tikta*, *Kashaya rasa*, *Ushna*, *Laghu*, *guna*, *Sheeta* *veerya*, *Katu vipaka*. It is *Pachani*, *Deepani*, *Medovinashini*, *Srotoshodhak*, *Tridosahara* and *Malsudhikar*. Due to its *Ushna*, *Laghu* *guna*, *Tikta* *rasa* it pacifies *Kapha* and *Medha*, thus relieves symptoms.
3. Dhatuposhak Vati- contains *Shankha bhasma*, *Mukta Shukti*, *Prawal Pishti*, *Kapardika*, *Loha*. Helps in *Asthma*, increases immunity, *Dhatu* *Poshana*, *Anorexia*.
4. Syrup GE Liv Forte- contains key ingredients like *Bhringraj*, *Kalmegh*, *Kutki*, *Vidanga* that improves digestion, improves liver function and boosts overall well-being.

5. Onco blaze churna- Key ingredients are *Guduchi*, *Kalmegh*, *Amalaki*, *Kantakari*, *Atasi*, *Jadaber*, *Haridra*, *Sitaphal*. Useful in increasing immunity, cystic growth.
6. Trivritta avaleha- Trivritta considered as a best drug for *virechana*.^[6] it is *sukhvirechan*^[7] so it is good for all persons. It has *laghu*, *ruksha*, *tikshna* *gunas*, *katu* *tikta* *rasa*, *ushna* *virya* and *pittaghna* property. *Lehya* *yogas* of *trivritta* are used as *virechana* as mentioned in *charak samhita*.^[8] It helps remove vitiated *pitta* from body.
7. Sama vati- it contains *Gokru*, *Kaunch*, *Shatawar*, *Aswagandha*, *Vidarikand*, *Akarkara*, *Talmakhana*, *Musli*, *Aawla*, *Sonth*, *Jaiphal*, *Swarn makshik*, *Shilajit* *shudh*. It is *deepana* *pachana*, helps in indigestion, liver disorders, constipation, *anorexia*, increases immunity.
8. Liv DS Cap- contains *Bhumiamla* Ext., *Kasani* Ext., *Himsra*, *Punarnava* Ext., *Guduchi* Ext., *Kakamachi*, *Arjuna*, *Biranjaspaha*, *Kasamarda* *Jhavuka*, *Vidanga*, *Chitraka*, *Kutki*, *Haritaki*, *Bhringraj*. *Guduchi* consists of *hepato-protective* properties which prevents fibrous changes and promotes regeneration of *parenchymal tissue*.^[9] *Guduchi* helps in normalization of altered liver functions (*ALT*, *AST*)^[10] *Kasni* seed, *Katuki* *rhizome*, *Bhunimba*, *Punarnava* is used in the management of *Shotha* and *Pandu*.^[11] It also has *Hepato-protective* Properties and helps in decreasing *albuminuria* and increasing *serum protein*.^[12] It also possess *anti-inflammatory* activity, thus help in modulating *inflammatory responses*.^[13] It is useful in liver disease and helps improve appetite.
9. Yakrit Shothahar Vati- contains *Punarnava*, *kalimirsch*, *pippali*, *vidanga*, *devadaru*, *haridra*, *chitrak*, *haritaki*, *amalaki*, *danti*, *chavya*, *pippalimula*, *kutki*, *nishoth*, *shunthi*, *ajwain*, *mandoor* *bhasma*. Helps in liver dysfunction, *diuretic*, *anemia*, *oedema*.
10. Dr. DS Powder- it contains *Triphala*, *trikatu*, *magarmotha*, *vidanga*, *elaichi*, *laung*, *shontha*, *sendha*, *Pippalimula*, *nagkeshar*, *anardana*, *pushkarmula*, *kanchanar*. It helps in indigestion, *udara vikara*. Helps boost immunity.
11. Immune plus syrup- it helps increasing immunity.

12. Shivagutika- it contains Brimhana drugs like Shatavari, Vidari, Riddhi, Risabhaka, Ksiravidari, Meda, Mahameda, Godugdha, Jeevanthi, Jivaka, Ghrita etc. It contains many Deepana, Pachana drugs like Pippali, Marica, Nagara, Gajapippali etc. is best for Agnimandya. Danti, Triphala are effective in maintain the Anulomana of Vata and also helps in constipation. It is also indicated in liver disorders.
13. Nervine tonic- it is an Ayurvedic formulation which has key ingredients like Ashwagandha, Musli, Harad. It helps minimize stress, increases energy levels, helps in detoxification and effective for nerve care.

Shirodhara- is a classic and widely practiced Ayurvedic procedure which involves slow and steady dripping of medicated oil on the forehead. *Taila dhara* is one of the variety of *shirodhara* which is considered specifically effective in various disorders where *vata dosha* play a predominant role^[14] The pressure of oil on to the forehead creates a vibration and then the oil saturates the forehead and scalp and penetrates into nervous system.^[15] Gentle pressure and soothing warmth of the oil allows the body, mind and nervous system to experience a deep state of relaxation.^[16] It helps to relieve stress. **Bramhi Tail**- is useful in relieving headaches, dizziness, anxiety, lack of sleep. It helps relax the mind. *Bramhi* is a *medhya*, *rasayana* and *kaphavata shamaka* which is specifically used in *nidravikara* and *manoroga*.^[17] It has *medohara* *nidrajanana*, *chittowegahara* (anxiolytic) and *hrudya* properties.^[18]

Udar basti/ Nabhi Basti- helps improve digestion, helps in relieving bloating, constipation, it help relive abdominal discomfort, *Nabhi* is one of the site of *Pitta*. *Dashmool tail* balances *Vata* and *Pitta dosha*.

Matra basti helps to pacify *Vata* imbalances in the digestive system and liver by providing lubrication and nourishment, potentially alleviating symptoms. By regulating *Vata*, *Matra Basti* can indirectly support liver function, which is crucial in managing jaundice. *Punarnava* stimulates bile secretion, which is important for maintenance of healthy liver. *Bhumiamalaki* is helpful in treating liver disorders. It helps in liver detoxification, reduces liver inflammation, and protects liver cells from damage.

Parishek- is a form of *swedana* which involves pouring/ showering of *Kwathadravya* over body. It is useful in *Vata*, *Pitta*, *Kapha rogas*, bodyache, abdominal distension and *Udavarta*.

Need for further research

While the presented Ayurvedic approach demonstrates promising clinical outcomes in managing symptoms related to **liver dysfunction, digestive disturbances, and neuromuscular complaints** in this 70-year-old male patient, there remains scope for **systematic scientific**

validation and long-term efficacy assessment. Key areas warranting further research include:

1. **Standardization & Clinical Validation**
 - The multi-*ayurvedic* formulations such as GE Liv Forte, Liv DS Cap, Arogya Vati, and Onco Blaze Churna require **standardized protocols and dosage guidelines** based on age, comorbidities, and disease severity.
 - Clinical trials are needed to assess their **hepatoprotective efficacy**, particularly in cases of **chronic liver parenchymal disease and obstructive biliopathy**.
2. **Mechanistic Understanding of Panchakarma Therapies**
 - Therapies like *Shirodhara*, *Nabhi Basti*, *Matra Basti*, and *Parisheka* demonstrated symptomatic relief. However, **biological markers and imaging evidence** supporting their physiological impact on **liver health, neural repair, and digestive modulation** need to be studied using modern parameters (e.g., cytokine markers, HRV, liver elastography).
3. **Integrative Impact Analysis**
 - The combined use of *ayurvedic* medicines, **dietary protocols, lifestyle changes, and detox procedures** creates a synergistic effect. Yet, **isolated efficacy vs. cumulative outcome studies** are needed to identify which components contribute most to improvement.
4. **Neurovascular Symptom Resolution (Numbness in Lower Limbs)**
 - The reversal or management of peripheral neuropathy/numbness through *Ayurvedic* nervine tonics and *Panchakarma* warrants **further neurological studies**, including NCS/EMG and **functional assessments**, to verify efficacy.
5. **Comparative Studies with Modern Treatment**
 - Further research comparing this integrated *Ayurvedic* regimen with conventional treatment protocols can help define its **role as a primary or adjunctive therapy**, especially for liver-related disorders and geriatric health issues.

CONCLUSION

The *Ayurvedic* management of this 70-year-old male patient suffering from **chronic liver parenchymal disease, digestive disturbances, and lower limb numbness**, involved a multi-dimensional approach incorporating **Ayurvedic formulations, diet and lifestyle modifications, and customized Panchakarma therapies**. Serial **LFT reports** showed a progressive decline in SGOT, SGPT, and ALP levels, indicating **gradual liver function normalization**.

Scan findings revealed **chronic liver changes with biliary obstruction and sludge formation**, which were addressed through hepatoprotective formulations (*Liv DS Cap*, *GE Liv Forte*) and *virechana*-based therapies (*Trivritta Avaleha*). The presence of **neurological symptoms** like numbness was managed with nervine

tonics and *Shirodhara*, which provided symptomatic relief.

The *Ayurvedic* medicines used possessed **Pittashamana**, **Deepana-Pachana**, **Raktaprasadana**, and **liver regenerative properties**, while *Panchakarma* procedures like *Matra Basti* and *Udar Basti* targeted systemic detoxification and *dosha* balance. The integrative regimen also addressed **psychosomatic stress** and **Agnimandya**, key contributors to disease manifestation.

This case highlights the **potential of holistic Ayurvedic protocols** in managing chronic liver conditions and geriatric neuromuscular issues. However, controlled research is essential to confirm its efficacy, ensure safety, and develop standardized therapeutic models.

REFERENCES

- Asrani SK, Devarbhavi H, Eaton J, Kamath PS. Burden of liver diseases in the world. *J Hepatol*, 2019; 70: 151-71.
- Singh SP, Panigrahi S, Mishra D, Khatua CR. Alcohol-associated liver disease, not hepatitis B, is the major cause of cirrhosis in Asia. *J Hepatol*, 2019; 70: 1019-38.
- Sushruta; Sushruta Samhita; with Nibandha Sangraha commentary of Sri Dalhanacharya, edited by Yadavji Trikamji Acharya; Chaukhamba Sanskrit Sansthan Varanasi; reprint 2019; 14/4-5; pp 59.
- Agnivesha; Caraka samhita; with Ayurveda Dipika commentary by Chakrapanidatta edited by Vaidya Yadavaji Trikamji Acharya; chaukhamba Surabharati Prakashana Varanasi; reprint 2021; Chikitsa vimanasthana 5/8; pp 250.
- Rasa Ratna Samuchya Suratnojwala Hindi Vyakya visarpa roga dhikar 20/87 & 93.
- Ganesh Krishn Garde, Sarth Vagbhatt Kalpasthan, Anmol Prakashan Pune, edition. 2008, 338.
- Acharya Vidyadhar Shukla, Ravidatt Tripathi, Charak Samhita part I, Choukhambha Sanskrit pratishtan, Delhi, edition. 2007, 338.
- Acharya Vidyadhar Shukla, Ravidatt Tripathi, Charak Samhita part I, Choukhambha Sanskrit pratishtan, Delhi, edition, 2007, 337.
- Singh DP, Awasthi H, Luqman S, Singh S, Mani D. Hepatoprotective effect of a polyherbal extract containing *Anhydrographis paniculate*, *Tinospora cordifolia* and *solanum nigrum* against paracetamol induced hepatotoxicity, *Phcog Mag*, 2015; 11 s3: 375-9.
- Anish K. Upadhyay, Kaushal Kumar, Arvind Kumar, and Hari S. Mishra *Tinospora cordifolia* (Willd.) Hook. f. and Thoms. (Guduchi) – validation of the *Ayurvedic* pharmacology through experimental and clinical studies, *Int J. Ayurveda Res.* 2010 Apr-Jun; 1(2): 112–121. doi: 10.4103/0974-7788.64405
- PandeyGS, editor. Bhavaprakasha Nighantu of Bhavamishra, Guduchyadivarga 10, Choukhamba Bharti Acedemy, Varanasi, 2004; 422.
- Rawat Ak, Mehrota S, Tripathi SC, Shome U. Hepato-protective activity of *Boerhaavia diffusa* L.roots- a popular Indian ethnomedicine, *J ethnopharmacol*, 1997; 56(1): 61-6.
- Bairwa K, Singh IN, Roy SK, Grover J, Srivastava A, Jachak SM. Rotenoids from *Boerhaavia diffusa* as potential anti-inflammatory GENTS, *J Nat prod*, 2013; 76(8): 1393-8.
- Sanwariya Rahul Kumar Et; Al: Shirodhara in Management of Hypertension - A Review Article www.iamj.in/current_issue/images/upload/79_82.pdf
- Sanwariya Rahul Kumar Et; Al: Shirodhara in Management of Hypertension - A Review Article www.iamj.in/current_issue/images/upload/79_82.pdf
- Sanwariya Rahul Kumar Et; Al: Shirodhara in Management of Hypertension - A Review Article www.iamj.in/current_issue/images/upload/79_82.pdf
- Dravyaguna Vigyan- Part II by P.V. Sharma: Chaukhamba Bharati Academy. Medhyadi varga, 7
- Effect of Brahmi vati and Sarpagandha Ghana vati in management of essential hypertension- A randomized, double blind, clinical study by D. Mishra, B.R. Tubaki / *Journal of Ayurveda and Integrative Medicine*, 2019; 10: 269276270. <http://dx.doi.org/10.1016/j.jaim.2017.04.001>.