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Journal of Traditional and Complementary Medicine 6 (2016) 316–320

Contents lists available at ScienceDirect

Journal of Traditional and Complementary Medicine

journal homepage: http://www.elsevier.com/locate/jtcme

Original article

Implications of traditional medicine in the treatment of Hepatitis A in Kerala

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ARTICLE INFO

Article history:
Received 12 August 2015
Received in revised form
22 January 2016
Accepted 26 January 2016
Available online 9 March 2016

Keywords:
Traditional medicine
Hepatitis A
Ayurveda
Kerala
Homeopathy

ABSTRACT

Introduction: The recent outbreaks of Hepatitis A in Kerala are suggestive of decrease in endemicity as most adults were not exposed during the childhood. In allopathic system of medicine, there is no established treatment for Hepatitis A and hence most people tend to rely on the alternate systems of medicine. The study was aimed at identifying the burden of Hepatitis A in the locality and to uncover the degree of dependence of the people on traditional systems of medicine.

Methods: The study spanned over 7 months and was conducted in Malappuram district of Kerala. A simple questionnaire having closed-ended questions was prepared and circulated among the physicians in the area. Demographic and other relevant details were obtained from the patients and the medicine system relied on was scrutinized.

Results: Of the 348 patients enrolled, majority of the patients were between the age of 10–30 years. The study revealed that females were more affected than males. Similarly people in rural areas were greater than those from urban areas. Most patients (73.28%) relied on Ayurvedic treatment after one week of onset of symptoms.

Discussion and conclusion: The preparations such as triphala which has great efficacy in treatment has to be further studied to establish the pathways and mechanism through which it acts. A collaborative effort between government, modern medicine and alternate medicine system can be highly effective in reducing the outbreaks of such epidemics through proper preventive and therapeutic strategies.

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1. Introduction

Hepatitis is a systemic viral infection that predominantly affects the liver and is classified into five types on the basis of the causative virus. Among them, Hepatitis A is the most common form caused by Hepatitis A virus (HAV) and is mainly prevalent in developing and under-developed nations where there are improper sanitation facilities. Though it is considered to be self-limiting, the reduction in the quality of life during the infectious stage can lead to inability to work or attend educational institutions and thus has major social and economic impact. It can be either epidemic or sporadic in nature and is estimated to affect over 1.5 million cases every year.[1]

Though acute hepatitis is generally due to HAV in paediatrics and Hepatitis E virus (HEV) in adults, the recent epidemiological studies have shown an increase in HAV cases in the adult population as well.[2] The symptoms of the disease are non-specific in nature and involve fever, malaise, right quadrant pain, nausea, headache, vomiting, jaundice and pale stools.

It is usually spread through the faecal–oral route due to the contamination of the eatables or drinkables with faecal material. Thought remission can occur within few weeks after onset of symptoms, in most cases it takes greater than eight weeks to subside. Though it is prevalent in the third-world countries, it has still caused major outbreaks in developed countries like USA where, an outbreak was catapult by contaminated green onions at a restaurant in Pennsylvania. The outbreak affected 640 people and

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Peer review under responsibility of The Center for Food and Biomolecules, National Taiwan University.

http://dx.doi.org/10.1016/j.jtcme.2016.01.004

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culminated in the death of four.[3] Another incidence involved recall of frozen pomegranates sold by US retailer Costco in USA which lead to 118 people developing Hepatitis A.[4] India used to be a hyper-endemic region for Hepatitis A with infection rates being provocatively high in the younger age groups. But this scenario has changed into moderate-endemicity with the rate declining in children. However, the current scenario has shown an increase in the adult population contracted with the disease which is a thing of grave concern with the low per capita income existing in India.[5]

Kerala is geographically located in the south-western corner of India and has high literacy rate and very good health indices as compared to other Indian states. The achievement of these feats has been possible even though the per capita income of the low. These two contrasting features have resulted in christening this unique type of developmental model as "Kerala Model of development".[6] However the recent outbreaks are suggestive of the decrease in endemicity in Kerala as most of the adults were not exposed in their childhood and hence even a mild contamination of water has led to epidemic outbreaks. The major epidemics included 399 cases being reported in 1998 in central Kerala and the outbreak in Kottayam in 2004 when sewage treatment water got mixed with canal water. Few years back, another outbreak occurred in Kollam district of Kerala. The 2014 health survey in Kerala detected 2831 patients who were infected and 6 dead with HAV.[7–9] Of these 752 (26.6%) infections and 2 (33.3%) deaths were reported from Malappuram district alone which shows the high prevalence of the disease in the district.

In allopathic system of medicine, there is no established treatment for Hepatitis A and WHO recommends that no therapy needs to be provided and the patient is to be advised to maintain nutritional balance. The patients are also abstained from using alcohol during the same period. Although there is general belief of avoiding fatty meals while infected, WHO recommends the use of egg, milk and butter so as to help provide an adequate caloric intake.

India has one of the oldest and richest cultural traditions in which indigenous systems of medicines developed. This heritage is still live in countryside where people tend to rely on traditional medicine to alleviate their conditions, especially in cases such as hepatitis, chikungunya and dengue fever which are common epidemic outbreaks in the region. Majority of Indians are dependent on the traditional systems of medicine as it is feasible economically and the fear of side effects is less. WHO has acknowledged the relevance of traditional medicines in developing countries and that it has an important role in providing services to a very large fraction living in rural areas. From the early 90s, Indian Council of Medical Research (ICMR) has set up an unique network country-wide for carrying out controlled clinical trials for herbal medicines. Using this network, the council has demonstrated the efficacy of several traditional medicines including *Picrohiza kurroa*, *Arogyawardhini*, *Tinospora cordifolia* and *Phyllanthus amarus* in the treatment of viral hepatitis.[10–13]

The study was aimed at identifying the burden of Hepatitis A in the locality and to uncover the degree of dependence of the people on traditional systems of medicine.

2. Materials and methods

2.1. Study area and population

The study was conducted in Malappuram district of Kerala. The district has a dominance of Muslim population and is the most populated district in the state of Kerala as per Census 2011. The selection of district was based on the reports of Integrated Disease Surveillance Unit which emphasised the prevalence of Hepatitis A in Malappuram as compared to other districts. The fact that KIMS Al Shifa Pvt Ltd, the main site of study was located in the location also supplemented the same.

2.2. Study period

The study was conducted over a period of 7 months from October 2014 to May 2015.

2.3. Study design

The cross-sectional descriptive study was performed to analyse the disease burden on the different economic groups in the region who relied on private hospitals, government establishments and traditional medical facilities in the locality. Prior to the commencement of the study, oral consent was obtained from the health care institutions and patients participating in the study.

With Kerala having deep roots in the traditional and alternative forms of medicine, the study initially attempted at evaluating the comprehension of allopathic doctors on the treatments used in other systems of medicine. A structured questionnaire was developed for this purpose by taking guidance from previous literatures and incorporating modifications as per the study objectives.[14,15] The physicians were asked to fill in the questionnaire as may seem appropriate and were asked to refrain from the need to identify themselves on the sheets provided. The questionnaire also helped in developing a general consensus on the diagnosis of Hepatitis A.

The diagnosis of hepatitis was ascertained on the basis of common consensus developed through the physician questionnaire. The patients were screened with the help of ASHA (accredited social health activists) workers in the locality. Patients who gave verbal consent to participate in the study were included and the remaining was excluded.

The data collected from patients included name, age, sex, date of onset of symptoms, health care institution relied on initially, economic status, type of occupation and system of medicine depended upon currently. A verbal survey was also conducted among the patients regarding the compliance to different treatment practices and the perceived efficacies. The data collection form as well as the questionnaire for physicians was validated internally.

2.4. Data analysis

The collected raw data was entered into Microsoft excel 2010 for windows and descriptive statistics was applied to obtain the results.

3. Results

A total number of 362 patients were approached of whom, 348 consented to participate and was enrolled in the study. Of the total sample, 63.51% (221) were females and the remaining were males. The difference was found to be extremely significant using one-sample binomial test with $p < 0.0001$. The mean age of the study sample was found to be 39 years (Range: 6–71 years; S.D = 7.4 years). The majority of the patients were between the age group of 10–30 years (Fig. 1). Of these patients 78.74% (274) belonged to the below poverty level (BPL) class as compared to remaining 21.26% (74) who fell under the above poverty level (APL) division. The patients were stratified on the basis of locality in which they reside and it was observed that 83.9% (292) patients lived in rural areas where they mainly depended on wells for their household activities and public ponds were relied on for washing and bathing by the male population. Among the patients, the major source of water relied on for daily activities was wells or bore-wells or tanker-

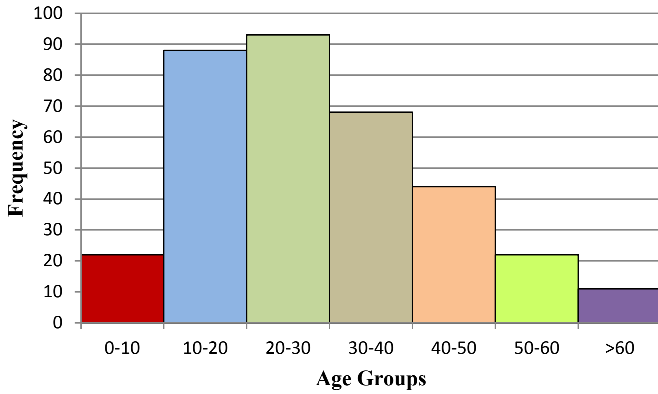

Fig. 1. Age wise distribution of patients.

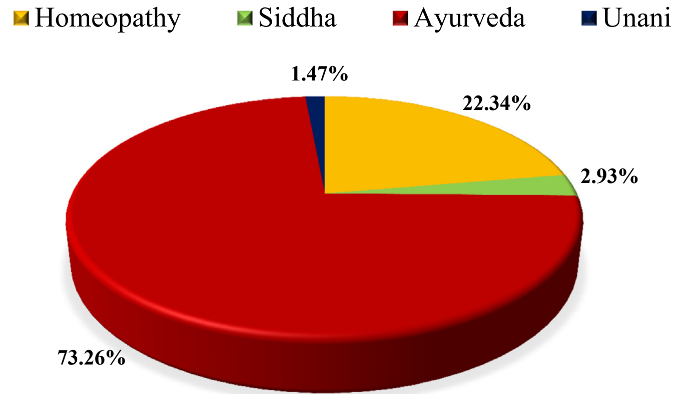

Fig. 3. Distribution of patients dependence on different system of medicines.

lorries in 54.03% (188) cases, pipeline water supply in 27.87% (97) cases and 18.1% (63) depended on both. The number of people involved in outdoor occupation was found to be 20.4% (71) whereas the others, especially females were involved in indoor occupation. The average duration from the onset of hepatitis among the patients was found to be 67.3 days. The health care institution primarily relied on was assessed and found to be primary health centres (PHC) in 54.02% (188) cases. 19.25% (67) subjects relied initially on private hospitals and 18.10% (63) in government medical colleges. Only about 8% (30) of the patients solely relied on alternate systems of medicine initially. The most prevalent symptom reported by the patients was fever and malaise in 69.82% (243) cases (Fig. 2). In cases where allopathic physician was consulted, acetaminophen (paracetamol) was the sole drug given and the advice was on diet restriction and proper fluid intake and rest. About 67.8% (236) patients took more than two month for recovery and 31.89 (111) took more than 1 month for recovery.

Most patients (78.45%) relied on alternate medical systems after one week of onset of symptoms. Of this 22.34% (61) depended on homoeopathic therapy and 73.26% (200) shifted to ayurvedic therapy. The remaining 4.4% (12) depended on other forms of therapy like Siddha and Unani systems (Fig. 3). None of the patients in the study population was identified to be depending on two systems of medicines simultaneously.

4. Discussion

The health survey in the previous few years indicate that, the district of Malappuram, where this study was conducted is emerging as Hepatitis A hotspot. There was increase in the number of cases by about 6 times from 2013 to 2014. The mean age of the sample indicates the change in the epidemiological pattern of the disease where the number of adults being infected with Hepatitis A is increasing as has been seen in studies conducted in other regions of India in the past 10 years.[9] Fig. 1 also gives indication of the rise in the number of adult patients between the age group of 20–30. The greater caution parents take in children below the age of 10 has been evident in low number of cases being reported in that age group. The dominance of females in the study sample depicts that they are more prone to infection due to engaging in activities such as washing, cleaning and food preparations that enables contraction of the disease. The role of socio-economic factor on the prevalence of disease is evident from the data which shows that significant number of cases was from below poverty level (BPL) families and people living in rural areas. The people who relied on natural water sources for their daily uses were more prone to the disease than those who relied on pipeline system. Although majority of the people initially rely on modern system of medicine, they tend to resort to the traditional systems after a few weeks as there is no specific therapy in allopathic medicine for hepatitis. This is also due to the fact that traditional medicine, especially the folk-cure practices are effective in reducing the symptoms and improving the quality of life and the belief that they are devoid of any adverse effects even if used for prolonged duration. None of the patients utilizing two traditional systems was a positive indication since the reverse can lead to interactions between the therapies used, as the mechanisms of action of many natural remedies have not yet been properly established. Therefore, if identified, such practices should be curbed by adequate patient counselling. Ayurvedic practices nowadays utilize a fusion of both the knowledge from ancient literatures, folk-cure practices and the evidence based knowledge to obtain positive result. Prescription of Liv-52 in modern system of medicine is a clear indication of the effectiveness of traditional medicinal practices over that of allopathic system in chronic hepatic conditions.

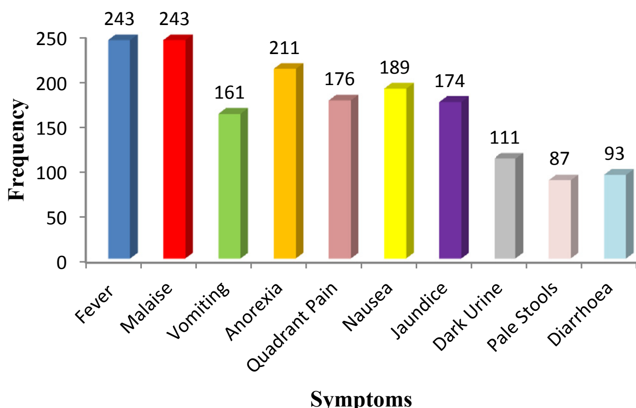

Fig. 2. Symptomatology of Hepatitis A.

4.1. Hepatitis A treatment in Ayurveda

Ayurveda literally means the science of life is believed to have been passed on to humans from the gods themselves. Ayurveda developed and evolved into what it is today from several ancient treatises, most notably *Adharva Veda* which dates back to five thousand years. The allopathic doctors in the survey considered Ayurveda to be a better alternative for Hepatitis A and to be having fewer side effects.

As per ayurvedic principles, there is balance between three factors (*doshas*) *vata*, *pitha* and *kabha* in a healthy individual. A

disruption to either of these factors or a loss of balance between the three can result in disease conditions. Of the three factors, *pitha* can be considered as analogous to bile secreted by liver. As per Ayurveda, it is the elevation in *pitha* that leads to the hepatic problems in man and is presented in the form of jaundice. The principle of Ayurvedic therapy for hepatitis is aimed at reducing *pitha* in the patients. The main aspect that differentiates between Ayurveda and allopathic system is that there are no pre-formulated drugs in the former and the medicine preparation is individualized based on his specific lifestyle and disease conditions. A decoction preparation known as *kashaya* was found to be a commonly prescribed medicine and consisted of *Triphala*, a herbal *rasayana* formula prepared from of three equal parts of *kadukka* (*Terminalia chebula*), nellikka (*Emblica officinalis*) and *tanikka* (*Terminalia bellirica*). It also contains amruth (*T. cordifolia*) and *aryaveppu* (*Azadirachta indica*). About 45 mL of the *kashaya* prepared from these drugs was taken by the patients in the early morning. Another medicine prescribed by the ayurvedic practitioners involved *churna* (powder) of *kanikkonna* (*Cassia fistula*), *tippali* (*Piper longum*) and *kurumulaku* (*Piper nigrum*) to be taken after mixing with sugarcane juice or gooseberry juice. Preparations consisting of *kadukka* (*T. chebula*) decoction, paste of *kadukka* (*T. chebula*) and ghee mixed together and to be taken at night was some prescribed in some patients. The diet restriction mainly involved reducing the consumption of meat, fried items and alcohol. Though the folk medicine is different from Ayurveda, many *vaidyas* (Ayurvedic doctors) tend to prescribe these as well as they are considered to be efficacious. Consumption of *Keezharnelli* (*Phyllanthus niruri*) after mixing it properly with milk comes under the practice of folk medicine. Another regimen involves consumption of mixture of *kadalaavanakku* (*Jatropha curcas*) and cumin seeds blended with milk. The milk used for preparation has to be freshly obtained and the patient after consumption of the medicine has to walk for at least 2 km. The patient is restricted from sleeping in the day time after consumption of medicine and directed to bath by pouring 101 cups of water on the third day from the intake of medicine.

Overall assessment found that, the patients were satisfied with the Ayurvedic therapies and complied to the direction of *vaidyas* to a greater extent than to the allopathic doctors. However the patients have to practice great care when approaching traditional healers as many are unlicensed and improper preparation of the drugs can catapult adverse effects in the patients.

4.2. Hepatitis A treatment in Homoeopathy

The treatment was based on diagnosis made on the basis of lab results, symptoms and the pathological findings in the patients. Unlike Ayurveda, allopathic doctors were unsure of the efficacy of Homoeopathic treatment or the adverse effects in Hepatitis A. The remedies used in the therapy of Hepatitis A mainly involved Chelidonium bid or tid, Carduus marianus (milk thistle) tincture 10 drops qid, Thuja bid, Podophyllum, Byronia qid etc. Of these Chelidonium was present in almost all the homoeopathic prescriptions made to the patients. The posology was found to be based on the traditional Homoeopathic principles and practices. On the basis of oral interviews, though the homoeopathic medicines were more effective than allopathic therapy, the benefits were subjectively perceived as inferior to Ayurvedic treatment.

Other forms of traditional therapy included Siddha and Unani which was depended on by a relatively non-significant population.

4.3. Hepatitis A treatment in Siddha

From Siddha perspective, hepatitis evolves due to alterations in food habits, environment and lifestyle coupled with genetic factors. All the 8 patients, who relied on Siddha therapy, were prescribed *Keezhanelli* (*P. amarus*) tablet and *Karisalai Karpam* (*Eclipta alba*) tablet; both at thrice daily dosing after meals. Similar to homoeopathic therapy, milk thistle (140 mg) was also administered to few patient on a twice daily basis. Individualized diet plans were also provided to each patient.

4.4. Hepatitis A treatment in Unani

Hepatitis is termed in Unani system of medicine as *Waram Kabid Haad* and they claim to have safe and therapeutically effective herbal drug against Hepatitis A. In the current setting, only 4 patients relied on Unani system of medicine. The drugs utilized in their therapy primarily involved a decoction constituted from six plants, namely, shahtara (*Fumaria officinalis*), sarphookah (*Tephrosia purpurea*), chiraita (*Swertia chirata*), gulemundi (*Sphaeranthus indicus*), and sandal surkh (*Pterocarpus santalinus*). One of them was prescribed a capsule, with ingredients which included *Rubia cordifolia*, *Valerina officinalis*, *Piper cubeba* and *Chenopodium album*, to be taken twice daily after food.

Though other practices such as Yoga, *Rasashastra* and *Sa-Rigpa* are practiced in other parts of the country for treatment of viral hepatitis, none of the patients in the study population was identified to be relying on them. In comparison to other medicine systems, Ayurveda is the treatment preferred by the majority in the locality due to its high cure rate and least side effects. Most medicines used in Ayurvedic therapy are found to be a combination of more than one herb which tends to cancel out the adverse effect of the other and supplements the pharmacodynamic efficacy of each other. However the people using the herbal medicines in hepatitis, especially those having polypharmacy have to be careful as the herbs may not be interaction free with the modern medicines and the severity of such interaction are to be considered. Many traditional healers practice the profession as part of heredity and may not have the educational qualification to practice Ayurveda as stipulated by the laws and regulations. There is no effective system established to check the quality of the medicines given by such practitioners. There may also be fraudulous practices such as mixing allopathic drugs along with the herbal preparations to get rapid relief and this may prove to be deleterious when NSAIDs such as aspirin as mixed with herbal preparations to alleviate pain. Inadequate quality control testing and assay may lead to presence of heavy metal content in the formulations and can prove to be further damaging than protective for the health of the patients.

Through oral closed-ended interview it was also detected that despite the patient having Hepatitis A, none of the household contacts in any of these cases had taken a prophylactic vaccination and the cost associated with the prophylaxis was found to be the major reason for abstinence. Government level initiatives need to be taken to make the vaccine available at lower cost to the people living in high-risk areas such as rural areas and places with poor sanitary and drainage conditions. The preparations such as *triphala* which has great efficacy in treatment has to be further studied to establish the pathways and mechanism through which it acts. There needs to be regulations for the practitioners and stringent monitoring to prevent unauthorised and fraudulous people from degrading the legacy of traditional medicine.

5. Conclusion

A vast majority in the area relied on alternate systems of medicine for Hepatitis A therapy, depicting its potential advantages over modern system of medicine in the treatment of this specific condition. Ayurveda, Homoeopathy, Siddha and Unani comprised the four dominant alternate systems of medicine relied on by Hepatitis

A patients in the area. A collaborative effort between government, modern medicine and alternate medicine system can be highly effective in reducing the outbreaks of such epidemics through proper preventive and therapeutic strategies. It is vital to conceive integrative therapeutic strategies and propagate these notions from primary levels, thereby benefitting the community as a whole.

Conflict of interest

None.

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