



GLOBAL JOURNAL OF MEDICAL RESEARCH: B
PHARMA, DRUG DISCOVERY, TOXICOLOGY AND MEDICINE
Volume 14 Issue 3 Version 1.0 Year 2014
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals Inc. (USA)
Online ISSN: 2249-4618 & Print ISSN: 0975-5888

Efficacy of Bee Venom as an Anti-Viral Therapy for HCV Genotype 4

By Abd Elrazek M Ali Abd Elrazek & Usama M. Abdel-aal

Al-Azhar University, Egypt

Abstract- Use of traditional medicine is encouraged in many economically diverse countries when conventional medications fail. HCV prevalence is highest in Egypt at >10% of the general population, and China has the most people with HCV (29.8 million); approximately 52% of patients infected with HCV genotype 4 will develop chronic HCV. The use of interferon, currently the only approved therapy, is frustrating in many situations. Use of camel milk or drinking copious amounts of urine, moxibustion by fire, acupuncture and cupping, especially in the Saharan and Arabian areas, is currently popular in Egypt. Some traditional Egyptian medicine is related to Arabian, ancient Egyptian, or other religious beliefs. Most patients using traditional therapies show improvement over time in both clinical symptoms and laboratory results. Some showed SVR using Bee venom therapy.

Keywords: *bee venom, HCV, traditional, therapy.*

GJMR-B Classification : *NLMC Code: QV 268.5, QV 704*



Strictly as per the compliance and regulations of:



Efficacy of Bee Venom as an Anti-Viral Therapy for HCV Genotype 4

Abd Elrazek M Ali Abd Elrazek ^α & Usama M. Abdel-aal ^σ

Abstract- Use of traditional medicine is encouraged in many economically diverse countries when conventional medications fail. HCV prevalence is highest in Egypt at >10% of the general population, and China has the most people with HCV (29.8 million); approximately 52% of patients infected with HCV genotype 4 will develop chronic HCV.

The use of interferon, currently the only approved therapy, is frustrating in many situations. Use of camel milk or drinking copious amounts of urine, moxibustion by fire, acupuncture and cupping, especially in the Saharan and Arabian areas, is currently popular in Egypt. Some traditional Egyptian medicine is related to Arabian, ancient Egyptian, or other religious beliefs. Most patients using traditional therapies show improvement over time in both clinical symptoms and laboratory results. Some showed SVR using Bee venom therapy.

Keywords: *bee venom, HCV, traditional, therapy.*

I. INTRODUCTION

Globally, it was estimated that in 2005, more than 185 million people had hepatitis C virus (HCV) antibodies; (prevalence of 2.8 percent) HCV prevalence is highest in Egypt at >10% of the general population and China has the most people with HCV (29.8 million), [1,2] Most cases of acute hepatitis C are anicteric and asymptomatic, with fewer than 25 percent being clinically apparent. Fulminant hepatitis C is rare. Nevertheless, the long-term liability of acute hepatitis C is significant due to the high rate of chronic infection (HCV-RNA positive in 55 to 85 percent of cases) and chronic hepatitis (elevated serum ALT concentration in 60 to 80 percent of patients with chronic infection). Approximately 20 to 30 percent of those chronically infected will develop cirrhosis, and a proportion of those patients will develop hepatocellular carcinoma [3, 4, 5, 6]. Treatment with Peginterferon and weight-based ribavirin alone results in sustained virologic response rates of only 40 to 50 percent in patients with chronic HCV genotype 4 [7,8,9,]. Traditional medicines have been used for medicinal purposes for thousands of years. All major cultures including Native American, European, South American, Asian, and African cultures have used botanicals for healing purposes. As an

Author α: Department of Liver Transplant and Hepatology-Al-Azhar Faculty of Medicine-Egypt. e-mail: ahmadrazek@gmail.com

Author σ: Department of Internal Medicine-Sohag Faculty of Medicine-Egypt.

example, saw palmetto was used for urinary symptoms in men from Egypt in the 15th century BC10 [10].

In this study we will shed light on one of these traditional medical therapies; Bee venom as an antiviral therapy for HCV genotype 4 in Egypt.

II. PATIENTS AND METHODS

We evaluated traditional bee sting venom medicine and reviewed the cases of five Egyptian patients infected with HCV genotype 4. This group included middle-aged adults, four males and one female, with an average age of 43.6 years.

The average BMI was 28, and all patients had chronic HCV infection. Three patients had portal hypertension causing splenomegaly and porto-systemic collateral shunt vessels. Two patients had thrombocytopenia, thyroiditis, and arthralgia related to HCV infection. All patients were instructed to discontinue all medications except those for hypertension.

All patients were administered bee venom using the traditional Egyptian medicine protocol. A total of three to five bee stings were applied above the knee joint. This was performed three times per week for 3 months. Bee death following the procedure was evidence of successful venom injection.

III. RESULTS

Surprisingly, one male patient showed a sustained viral response (SVR) by PCR following 3 months of treatment. Qualitative PCR was repeated 6 and 12 months following conclusion of the bee sting treatment protocol.

a) Clinical

1. The patient appeared healthier with an acceptable general condition.
2. No heat or pain in any joint.
3. No development of signs associated with hepatic decompensation.
4. No manifestations of other diseases (cardiac, dermatological, renal, or pulmonary).
5. disappearance of all extrahepatic manifestations of HCV ; arthralgia, glucose Intolerance, Itching, and thyroids.

b) U/S Applications

1. Improvement of general cirrhotic morphology with less coarseness and elevated echogenicity of fat.

2. Decreased spleen diameter.
3. Decreased portal vein diameter.
4. Decreased splenic vein diameter.

c) *Laboratory Values*

1. We estimated PCR only in 3 patients. One male patient showed SVR, another patient showed a significant (2 log) decrease in viral load; (both patients had early cirrhosis without portal

- hypertension or extrahepatic manifestation) Whatever the third patient (Alcoholic with advanced degree of liver cirrhosis and portal hypertension) showed a decrease of only 1 log. (Diagram 1)
2. The blood glucose profile normalized in patients with impaired glucose tolerance.
 3. The thrombocytopenia improved, but did not return to the normal range.

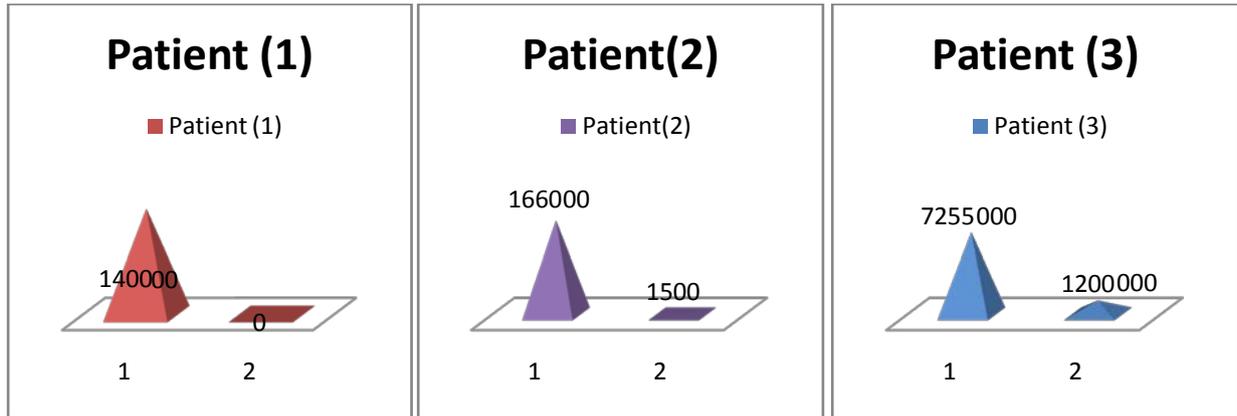


Diagram (1) : Showing PCR significant and insignificant decreased Log in patients 2&3 respectively. Patient (1) showed SVR

Table 1 : showing Liver enzymes pre and post Venom Therapy. There is also evidence of ALT, AST improvement post Venom therapy. (Normal ALT, AST values); Up to 40 and 45 respectively. (Normal PCR); Undetectable viremia by TMA Test.

		BEFORE BEE VENOM THERAPY			AFTER BEE VENOM THERAPY		
Sex	Age	ALT	AST	PCR	ALT	AST	PCR
M	24	48	47	140,000	30	31	SVR
M	34	50	52	166,000	24	35	1500
M	44	65	55	7,255,000	25	33	1,200,000

IV. DISCUSSION

Use of traditional medicine is encouraged in many economically diverse countries when conventional medications fail.

Disease progression in patients undergoing conventional treatment causes frustration and feelings of oppression and defeatism, which can lead to depression. This is particularly true for highly intellectual individuals. Depression has significant effects on the immune system, and increases morbidity/mortality, resulting in serious adverse events and multisystem infection. Disease progression is directly related to the effect of depression on the immune system. The patient is then conflicted, as he must fight a hidden enemy, the virus, within his body. This creates a potentially tragic scenario.

Egypt has the highest prevalence of chronic hepatitis C virus (HCV) in the world; >10% of the population is infected. Most cases of acute hepatitis C are asymptomatic, with fewer than 25 percent being clinically apparent. Fulminant hepatitis C is rare. Nevertheless, the long-term liability of acute hepatitis C is significant due to the high rate of chronic infection (HCV-RNA positive in 55 to 85 percent of cases) and chronic hepatitis (elevated serum ALT concentration in 60 to 80 percent of patients with chronic infection). Approximately 20 to 30 percent of those chronically infected will develop cirrhosis, and a proportion of those patients will develop hepatocellular carcinoma. The use of interferon, currently the only approved therapy, is frustrating in many situations. This is because coinfection with Schistosoma spp., genotype resistance, complications of interferon/ribavirin therapy, long

treatment courses, and relapses, lead to poor outcomes compared to infection with genotypes 2 and 3 [11,12,13]. In patients with significant fibrosis, our approach depends upon the patient's HCV genotype. In patients HCV genotype 1 or 4, guidelines recommended IL28B genotype to determine if the patient is likely to respond to therapy. Accordingly we prefer to withhold antiviral therapy if the patient does not have a favorable genotype (CC at the rs12979860 polymorphic site). However, in an otherwise healthy patient with HCV genotype 1 or 4 and a favorable IL28B genotype,

treatment is reasonable with close monitoring for side effects. Unfortunately many HCV genotype 4 patients have not the favorable genotype, especially those live in Egypt.

Use of traditional Egyptian therapy has been strongly encouraged in the last 10 years throughout Egypt.

Use of camel milk or drinking copious amounts of urine with or without moxibustion by fire, acupuncture and cupping, especially in the Saharan and Arabian areas, is currently popular in Egypt (figure 1).



Figure 1 : showing different traditional medicine used in Egypt especially in Saharan and Sub-Saharan regions for the therapy of chronic diseases especially those with HCV genotype 4

Some traditional Egyptian medicine is related to Arabian, ancient Egyptian, or other religious beliefs. Most patients using traditional therapies show improvement over time in both clinical symptoms and laboratory results. Patients have been found to have significantly decreased ascetic fluid volume or resolution of ascites, improved libido and stamina, improved renal function tests (particularly excretion function), and a significantly decreased viral load.

In the current study we evaluated traditional bee stinging venom medicine and reviewed the cases of five Egyptian patients infected with HCV genotype 4; (4 males and 1 female), with 43.6 average age and 28 average calculated BMI, surprisingly one male patient showed a sustained viral response (SVR) by PCR

following 3 months of treatment, qualitative PCR was repeated 6 and 12 months following conclusion of the bee sting treatment protocol, all patients showed improvement in the general condition. Arthralgia, glucose intolerance, itching and tyroditis subsided accompanied with better sonographic pictures following 3 months of the therapy.

It is well known that Bee Venom consists of several biologically active peptides, including mellitin, apamin, adolapin and mast cell degranulating peptide [14]. Few studies have indicated that administration of Bee Venom can significantly impart an anti arthritic response and initiate the protective mechanism against hepatic fibrosis [15].

To our knowledge no reports mentioned the traditional therapeutic use of Bee Venom as an effective therapy against HCV genotype 4, but we need to know more about the mechanism of action, either through antiviral mechanism or immunostimulation therapy, whatever emerging of new drugs e.g.: Sofosbuvir and Simeprevir may be the clue for the therapy of HCV different genotypes.

V. STUDY LIMITATIONS

The response to traditional bee-venom-based medication should be further evaluated. The properties of the venom likely vary according to the flowers visited by, and the environment of, the bees.

We used our clinical knowledge to evaluate the results of this report.

REFERENCES RÉFÉRENCES REFERENCIAS

- Mohd Hanafiah K, Groeger J, Flaxman AD, Wiersma ST. Global epidemiology of hepatitis C virus infection: new estimates of age-specific antibody to HCV seroprevalence. *Hepatology* 2013; 57:1333.
- Hajarizadeh B, Grebely J, Dore GJ. Epidemiology and natural history of HCV infection. *Nat Rev Gastroenterol Hepatol*. 2013 Sep;10(9):553-62.
- Kenny-Walsh E. Clinical outcomes after hepatitis C infection from contaminated anti-D immune globulin. *Irish Hepatology Research Group. N Engl J Med* 1999; 340:1228.
- Vogt M, Lang T, Frösner G, et al. Prevalence and clinical outcome of hepatitis C infection in children who underwent cardiac surgery before the implementation of blood-donor screening. *N Engl J Med* 1999; 341:866.
- Shakil AO, Conry-Cantilena C, Alter HJ, et al. Volunteer blood donors with antibody to hepatitis C virus: clinical, biochemical, virologic, and histologic features. The Hepatitis C Study Group. *Ann Intern Med* 1995; 123:330.
- Heintges T, Wands JR. Hepatitis C virus: epidemiology and transmission. *Hepatology* 1997; 26:521.
- Swain MG, Lai MY, Shiffman ML, et al. A sustained virologic response is durable in patients with chronic hepatitis C treated with peginterferon alfa-2a and ribavirin. *Gastroenterology* 2010; 139:1593.
- Ghany MG, Nelson DR, Strader DB, et al. An update on treatment of genotype 1 chronic hepatitis C virus infection: 2011 practice guideline by the American Association for the Study of Liver Diseases. *Hepatology* 2011; 54:1433.
- Ramachandran P, Fraser A, Agarwal K, et al. UK consensus guidelines for the use of the protease inhibitors boceprevir and telaprevir in genotype 1 chronic hepatitis C infected patients. *Aliment Pharmacol Ther* 2012; 35:647.
- Wilt TJ, Ishani A, Stark G, et al. Saw palmetto extracts for treatment of benign prostatic hyperplasia: a systematic review. *JAMA* 1998; 280:1604.
- Papastergiou V, Dimitroulopoulos D, Skorda L, Lisgos P, Ketikoglou I, Kostas N, Karatapanis S. Predictors of sustained virological response in Greek and Egyptian patients with hepatitis C genotype 4: does ethnicity matter? *J Med Virol*. 2012 Aug; 84(8):1217-23.
- Abdel-Moneim AS, Bamaga MS, Shehab GM, Abu-Elsaad AA, Farahat FM. HCV infection among Saudi population: high prevalence of genotype 4 and increased viral clearance rate. *PLoS One*. 2012; 7(1):e29781.
- Shakil AO, Conry-Cantilena C, Alter HJ, et al. Volunteer blood donors with antibody to hepatitis C virus: clinical, biochemical, virologic, and histologic features. The Hepatitis C Study Group. *Ann Intern Med* 1995; 123:330.
- Lee, J.D., S.Y.Kim, T.W.Kim, S.H.Lee et al.,. Anti-Inflammatory effect of bee venom on type II collagen-Induced arthritis .*American Journal of Chinese Medicine*.32:361-367, 2004.
- Soo-Yung Kim et al. Bee Venom inhibits Hepatic Fibrosis Through Suppression of pro-Fibrogenic Cytokine Expression. *American Journal of Chinese Medicine* 38:921-935,2010.