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Beneficial impact of carica papaya mother tincture in increasing thrombocyte counts in cases of dengue

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Abstract

This article is to focus on the study of thrombocytopenia due to Dengue infection. Experimental, interventional study of 50 cases observed for a period of 2-3 weeks to ascertain the effect of Carica papaya Q in increasing the thrombocyte count on the basis of Homoeopathic principles. From the selected samples majority showed marked improvement in the thrombocyte counts confirming the effectiveness of Carica papaya mother tincture in Dengue patients.

Keywords: Thrombocytopenia, carica papaya, homoeopathy, mother tincture, dengue

Introduction

Since last decade Carica papaya extract is been used quite efficiently in treatment of Dengue especially in increasing the platelet count. This medicine has proven efficient in Dengue, yet we lack the exact materia medica of the same.

Idea of this research is to extract the exact efficacy of this efficient drug on a vicious disorder like Dengue. Leaves of Carica papaya which is the only species in genus Carica is reported to have potential to enhance platelet count in Dengue fever^[1, 2]. It is estimated that 52% of the worldwide population are at risk of getting infected by the dengue fever or dengue hemorrhagic fever lives in the South East Asian Region^[3].

The virus of dengue belongs to the genus Flavivirus of the family Flaviviridae, is an arthropode-borne virus that has four different serotypes (DEN-1, DEN-2, DEN-3, and DEN-4) and spread by Aedes aegypti mosquitoes. Early and accurate diagnosis is needed to reduce the mortality rate. Although dengue virus infections are self-limiting, the infection of dengue has become a public health challenge globally^[4].

Etiopathogenesis

Dengue virus enters the host organism through the skin followed by an infected mosquito bite. Humoral, cellular, and innate host immune responses are the steps in the progression of the illness and the more severe clinical signs then occur and then the rapid clearance of the virus from the host organism takes place. Alterations in endothelial microvascular permeability and thromboregulatory mechanisms is followed by the increased loss of protein and plasma. Existing theories suggest that endothelial cell activation which is caused by the monocytes, T-cells, the complement system, and various inflammatory molecules mediates the plasma leakage. Thrombocytopenia sometimes is related to alterations in megakaryocytopoiesis, manifested by the infection of human hematopoietic cells and also the compromised progenitor cell growth. This may lead to the platelet dysfunction, damage, or depletion, and also can cause significant hemorrhages.

Clinical features

Chief symptoms, usually begin four to six days after the infection and last up to 10 days, may include

- High grade fever
- Headache
- Pain in the orbit of eye
- Severe bodyache, joint pains and myalgia
- Malaise

- Nausea and Vomiting
- Skin rashes with itching
- Mild hemorrhage (such a nose bleed, bleeding gums, or easy bruising)

Sometimes complications can be seen, which include dengue hemorrhagic fever, associated with high fever, damage to lymph and blood vessels, hemorrhage from the nose and gums, enlargement of the liver, and failure of the circulatory system, termed as Dengue shock syndrome (DSS).

Diagnosis

Leukopenia, thrombocytopenia and metabolic acidosis are the initial pathological changes found. Microbiological laboratory investigations confirm the diagnosis of Dengue Fever. Virus segregation in cell cultures, nucleic acid demonstrated by polymerase chain reaction (PCR), and serological detection of viral antigens (NS1) or particular antibodies are the microbiological assays done. Viral segregation and nucleic acid demonstration give confirmed diagnosis.

Methodology

1. **Project site:** Ahmedabad Homoeopathic medical college and Sainath hospital
2. **Study type:** Interventional, Observational
3. **Study duration:** Month
4. **Sampling:**
 - a) **Method:** Purposive sampling
 - b) **Number of samples:** 50 cases
 - c) **Inclusion criteria:** Cases of Dengue with low total platelet count were selected irrespective of age, gender and socioeconomic status.
 - d) **Exclusion criteria**
 - Any case with low platelet counts due to any other cause other than Dengue.
 - Total Platelet count below 40,000 per microliter
 - Pregnant and breast-feeding females.
 - Patients with irreversible pathologies.
5. **Data collection:** Data of patients was collected according to the instructions of case taking given in aphorism number 83 to aphorism number 104 of organon of medicine.
6. **Description of investigational Products** ^[5]

Carica Papaya Q

Botanical Name: Carica papaya Linn; Family: Caricaceae

Common names: English: Melon tree; Hindi: *Papita*

Description: Its tree is 2 to 6 m in height, tapering above 12 to 13 cm in diameter at top. The stem is soft and spongy, woody, hollow and bearing numerous leaf-scars.

Part used: Green unripe fruit excluding seeds. Distribution: Commonly throughout India.

Preparation: Mother tincture (Drug strength 1/10)

Carica papaya (moist material) solids - 100gms and plant moisture - 400 ml	500 g
Strong Alcohol	635 ml

For making 1000 ml of the mother tincture.

7. **Study design:** Study was experimental, interventional study where 50 patients fulfilling the inclusion criteria were selected for the study and given Carica papaya Q

and observed for 2 weeks for improvement in Thrombocyte count.

8. Treatment of subject

- **Dose:** Medicine was administered as mother tincture; 10 drops with water.
 - **Repetition:** Repetition was done as per the intensity and severity of case.
 - **Follow-Up:** Follow-up and repeat CBC was done every 3rd day.
9. **Assessment of efficacy:** Total Platelet count was considered as the baseline criteria to assess the efficacy of the medicine under the study.

Result

Table 1: Socio-demographic parameters affecting Dengue

Demographic Range	Number of cases
Age	
18-30	10
31-40	24
41-50	10
51-60	06
Gender	
Female	30
Male	20
Recovery period in days	
0-7	24
8-15	48

Table 2: Measurement of platelet counts before treatment

Group	Platelet range	Average platelet	Num. of cases
A	40K-60K	49,400	15
B	61K-80K	65,888	09
C	81K- 1 LAC	91,030	10
D	1 LAC-1.2LAC	1,10,000	08
E	1.21LAC-1.4LAC	1,23,000	02
F	1.41LAC-1.6LAC	1,50,333	06

Table 3: Measurement of platelet counts after treatment

Group	Platelet range (in lacs)	Average platelet	Num. of cases
A	1.40-1.60	1,46,933	11
B	1.61-1.80	1,67,962	07
C	1.81-2.0	1,88,600	10
D	2.1-2.20	2,15,833	06
E	2.21-2.40	2,70,750	13
F	2.41 ONWARDS	2,42,750	01

Adverse Effects

No adverse events were reported during the study. The subjects were examined thoroughly to evaluate any adverse effects after consumption of the Homoeopathic medicine.

Contraindications

There is no contraindication noted for the medicine Carica Papaya, but still to avoid any unexpected adverse events, pregnant and nursing women were not registered for the study.

Discussion

Carica papaya mother tincture significantly accelerates the platelets rate in dengue induced thrombocytopenia. But it should be noted that this drug did not alter other blood parameters as observed in study. The platelet augmentation by this drug was immediate and it might be due to splenic

contraction or thrombocytosis^[1]. The constituent present in the leaves of *Carica papaya* are Carpain, Pseudocarpain, dehydrocarpaine I and II, choline, carposide, vitamin C and E^[2]. Any or some of the above-mentioned constituents might have been responsible for splenic contraction or thrombocytosis or both. The red pulp of spleen which contains contractile proteins might have been sensitized by the drug results in splenic contraction. This phenomenon not only will infuse the sequestered platelets into the circulation but also reduces the splenic blood flow thereby maintaining the augmentation of platelet counts^[3]. In this study total 50 patient's data were collected on the basis of their signs and symptoms and number of platelets (which was less than normal). After administration of *Carica papaya* mother tincture in all these patients, number of platelets were increased gradually in all the patients (except in 2 patients who left the treatment). Verified data is given below. In this study the study period was total of 15 days for every patient. Platelet count was done every 3rd day in each patient.

On 3rd day	22	28
On 6th day	25	25(here 2 patients left the treatment)
On 9th day	29	19
On 12th day	34	14
On 15th day	48	00

Conclusion

In the study total 50 patients of both the sexes were selected as per the inclusion and exclusion criteria and were prescribed *Carica Papaya* mother tincture for 2 weeks duration. The patients were observed as per the assessment criteria. From the above results and discussions we can here by conclude that *Carica papaya* mother tincture shows encouraging results in cases of thrombocytopenia in Dengue infected patients.

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