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The Impact of Carica Papaya Departs Separate Cases On Platelets Check and Hematocrit Levels in Intense Febrile Disease with Thrombocytopenia Tolerant

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ABSTRACT: - *Carica papaya departs have been utilized as a part of society pharmaceutical for quite a long time. Notwithstanding the healthful estimation of its natural product, the leaves of C. papaya have restorative properties and are broadly utilized as a part of customary solutions. This examination was directed to decide the impact of C. papaya leaves remove containers (CPC) in intense febrile ailment with thrombocytopenia. An observational, forthcoming, uncontrolled, open name, single focus contemplates in Indian patients. Add up to 80 patients were selected in the investigation. These subjects were randomized into two gatherings of 40, including the control and intercession gatherings (got two CPC three times day by day). The outcome demonstrated that CPC had huge expanded the platelet check ($p<0.05$) and kept up solidness of hematocrit in the ordinary level. Carica papaya leaf concentrate could be utilized as an extra or as a reciprocal medication in intense febrile ailment patients with thrombocytopenia; it quickens the expansion in the platelet check and abbreviate the hospitalization in this manner lessening the cost of hospitalization essentially.*

Key-words: Carica, fever, thrombocytopenia

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I. INTRODUCTION

Carica papaya (C. papaya) is an individual from the caricaceae and is a dicotyledonous, polygamous and diploid species.[1] It started from Southern Mexico, Focal America and the northern piece of South America. It is presently developed in numerous tropical nations, for example, India, Bangladesh, Indonesia, Sri Lanka, Philippines, West Non mainstream players and Malaysia. The papaya organic product is universally expended either in its straight from or the type of juices sticks and solidified dry natural product. The ready organic product is said to be a wellspring of vitamin A, C and calcium. There are numerous business items got from the diverse parts of the C. papaya plant, the most noticeable being papain and chymopapain which is created from the latex of the youthful natural product, stem, and the clears out.

C. papaya leaves have been utilized as a part of people solution for quite a long time. Late examinations have demonstrated its advantageous impact as a mitigating specialist, for its injury recuperating properties [2] against tumor and in addition immunomodulatory impacts [3] and as an antioxidant.[4] A poisonous quality investigation (intense, subacute, and endless lethality) led on Sprague Dawley rats directed with C. papaya leaves juice uncovered that it was alright for oral consumption.[5] Security thinks about in light of OECD (Association of financial Participation and advancement) rules for intense, subacute and unending lethality directed on C. papaya extricate and demonstrated that it was observed to be alright for human consumption.[5]

The leaves of papaya have been appeared to contain numerous dynamic parts. That can build add up to cell reinforcement action in blood and decrease lipid peroxidation level, for example, paper chymopapain, cystatin, tocopherol, ascorbic corrosive, flavonoids, cyanogenic-glycosides glucosinolates.[3]
The alkaloids, flavonoids, saponins, tannin, and glycosides are connected with calming movement. C. papaya leaves separate likewise found to have hostile to bacterial impact [6], against tumor, and immunomodulation exercises. The leaf of C. papaya is classified as non poisonous in light of the fact that it's LD50 >15 g per kg body weight. The leaves additionally contain cardiovascular glycosides, anthraquinones, carpaine, pseudocarpaine, phenolic compounds.[7,8]
Notwithstanding the healthful estimation of its organic product, the leaves of C. papaya have restorative properties and are generally utilized as a part of conventional pharmaceuticals. Past examinations in papaya have demonstrated that seed concentrate of C. papaya have pharmacological exercises, including antihelmintic, antifertility, prophylactic and so forth. A boiling water concentrate of the leaves is taken orally as an antipyretic, treatment of pallor and hunger incitement. In different nations the leaves concentrate of C. papaya had been viably utilized for treatment of dengue fever malady related with thrombocytopenia.[9] This examination was directed to decide the impact of C. papaya leaves extricate cases (CPC) in intense febrile ailment with thrombocytopenia.

II. MATERIALS AND METHODS

Study Design
An observational, prospective, uncontrolled, open label, single centre study in Indian patients.

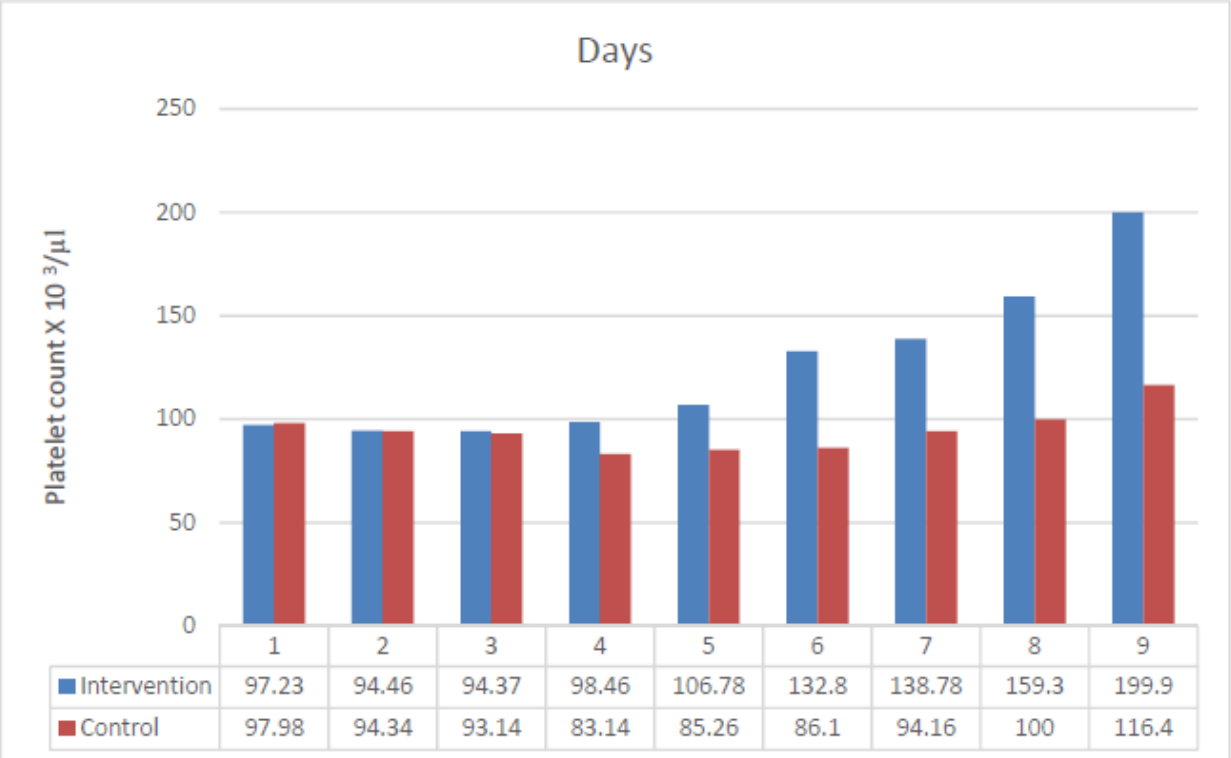
Place and Duration of Study
Patients were enrolled from indoor patient medicine department of a tertiary care hospital from January 2014 to November 2015.

Methodology

Add up to 80 patients were enlisted in the examination. These subjects were randomized into two gatherings of 40, including the control and intercession gatherings (got two CPC three times day by day). Before screening every single taking part persistent got full verbal and composed subtle elements of the investigation including study method and use in the subject data sheet. Before selecting, educated patient assent was gotten by their marking of the educated assent frame. At screening, enrolment depended on qualification criteria, medicinal history and clinical examination. Statistic data, for example, age, sex, stature and weight were recorded. Pre-ponder physical examination was completed at doctor's attentiveness. All data acquired amid screening was entered for the situation report shape. The incorporation criteria were as per the following: Grown-up guys or females, age more than18 years; patients with fever of short of what one month term, platelet check under 100000/µl and deliberate patient assent. All pregnant and lactating females were rejected from the investigation. Patients < 18 years; and with history of hypersensitive medication responses were rejected from the examination.

III. RESULTS

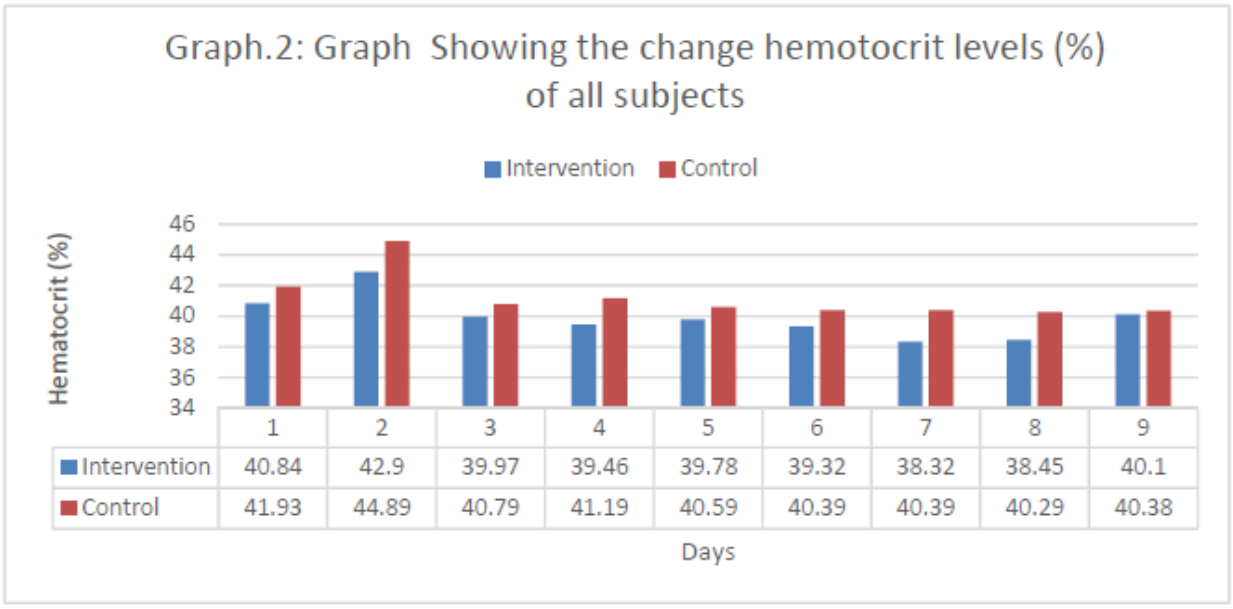
The result showed that CPC had significant increased the platelet count ($p<0.05$) and maintained stability of hematocrit in the normal level.



	1	2	3	4	5	6	7	8	9
Intervention	97.23	94.46	94.37	98.46	106.78	132.8	138.78	159.3	199.9
Control	97.98	94.34	93.14	83.14	85.26	86.1	94.16	100	116.4

Figure 1: Graph showing the change in platelet count of all subjects

The rise of platelet counts in the intervention group is 'J' shaped and shallow 'u' in the control group respectively, demonstrating faster and significant rise of platelets during the critical phase of defervescence.(Figure.1) Statistical analysis with dependent t test showed significant differences of platelet count. ($p<0.05$)



	1	2	3	4	5	6	7	8	9
Intervention	40.84	42.9	39.97	39.46	39.78	39.32	38.32	38.45	40.1
Control	41.93	44.89	40.79	41.19	40.59	40.39	40.39	40.29	40.38

Figure 2: Graph showing the change in hematocrit levels (%) of all subjects

Hematocrit levels remained stable in intervention group but change in hematocrit levels in intervention and control group were statistically insignificant.

IV. DISCUSSION

Thrombocytopenia often characterized by platelet count less than 150000 per µl of blood is more prevalent and could be due to a decreased platelet production and/or increased destruction. Thrombocytopenia is associated with symptoms as bruising, purpura in forearms, pinpoint hemorrhages, nose bleeds, and bleeding gums.

Clinical manifestations of Thrombocytopenia are mild as long as platelet counts are above 20,000/µl and are generally limited to easy bruising. Once the count goes below 10000/µl the risk of spontaneous mucocutaneous bleeding (gingival bleed, epistaxis, menorrhagia, petechiae and ecchymoses) and life threatening spontaneous intracranial hemorrhage or gastrointestinal bleeding increases rapidly.[10]

Treatment is guided by etiology and disease severity. The main concept in treating thrombocytopenia is to eliminate the underlying problem, whether that means discontinuing suspected drugs that cause thrombocytopenia, or treating underlying sepsis.

Corticosteroids, intravenous immunoglobulin, and splenectomy remain mainstays of treatment however, newer therapies including rituximab and the thrombopoietin receptor agonists are remodeling conventional treatment algorithms. In severe cases and associated with bleeding platelet transfusion is recommended.

All these above mentioned treatment options have their own advantages and disadvantages.

Therefore in the current lieu, consideration for alternate therapies to combat the low platelet count, which is relatively free from the toxic side effects of the drug, should be given.

Certain genes have been shown to influence platelet production and platelet aggregation, namely the Arachidonate 12-lipoxygenase (ALOX 12) also known as the Platelet-type Lipoxygenase as well as the Platelet-Activating Factor Receptor (PTAFR). An increase in activity of these genes is required for platelet production and activation. The

ALOX 12 gene is strongly expressed in megakaryocytes and has been known to be responsible for the 12-Hydroxyeicisatetraenoic acid (12-HETE) production of platelets.[11] The PTAFR gene has been found to be expressed in megakaryocytes indicating that it could be a precursor for platelet production in addition to its well known role in platelet aggregation.
ALOX 12 is known to be associated with increased megakaryocyte production as well as its conversion to platelets through 12-HETE mediated pathway which in turn leads to increased platelet production. The active ingredients of C. papaya up regulate the ALOX 12 and PTAFR gene thereby leading to an increased production of megakaryocytes and its conversion into platelets. Clinical evidence shows that. C. papaya extract increases ALOX 12 activity 15 fold and PTFAR activity 13.42 fold which is responsible for increased platelet production.[12]

Fenny Yunita et al. showed that C. papaya leaves juice significantly accelerates the rate of increase in platelet count among patients with dengue fever and dengue hemorrhagic fever.[13] Nisar Ahmed demonstrated rise of platelet count from 55000/µl to 168000/µl after C. papaya leaves extract in dengue fever patient.[14] Our study results were also consistent with these previous studies.

V. CONCLUSION

C. papaya leaf concentrate could be utilized as an extra or as a corresponding medication in intense febrile ailment patients with thrombocytopenia; it quickens the expansion in the platelet tally and abbreviate the hospitalization in this way lessening the cost of hospitalization essentially.

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