



IJPPR

INTERNATIONAL JOURNAL OF PHARMACY & PHARMACEUTICAL RESEARCH

An official Publication of Human Journals

ISSN 2349-7203



Human Journals

Review Article

May 2016 Vol.:6, Issue:2

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Caripill: An Advance Treatment for Dengue



IJPPR
INTERNATIONAL JOURNAL OF PHARMACY & PHARMACEUTICAL RESEARCH
An official Publication of Human Journals

ISSN 2349-7203



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Submission: 9 May 2016
Accepted: 14 May 2016
Published: 25 May 2016

Keywords: Caripill, Dengue, Platelets, Stromal cells, IL-6

ABSTRACT

Dengue is a universal health problem stated by the World Health Organization. All over the world 2.5 billion People were at risk of dengue and 50 million dengue infections occurring annually, according to WHO. Before introducing Caripill, the prescription contains Paracetamol, IV or oral fluids and blood transfusion etc. as a symptomatic treatment to treat dengue patient. Now, Caripill a new drug came to treat the dengue patients to increase the platelet count and other issues by its benefits. The drug possesses minimal side effects, drug-drug interactions, and ADRS. The main objective of the development of Caripill is to reduce the trauma, high cost of hospitalization and blood transfusion.



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INTRODUCTION

In India dengue cases were first observed in madras (Now called as Chennai) Calcutta and eastern coast of India. In madras, the first dengue case was observed in 1780. In 1963 – 1964 virologically proved case was observed in Calcutta and eastern coast of India. In 1996, dengue cases were observed greatly and this was first major spread reported in India, involving areas include Delhi, Lucknow and spread all over the country. The word dengue is derived from the “Swahili phrase ka-dinga pepo” means “cramp like seizure”. It is also named as water poison, break bone fever. Dengue is a viral disease caused by four serotypes namely DV/DENV-1, DV-2, DV-3, and DV-4 of the *flaviviridae* family, transmitted by *Aedes aegypti* mosquito and also by *Aedes albopictus*. In 1997, WHO classified the dengue fever into three types i.e., *undifferentiated dengue fever, dengue fever, and dengue hemorrhagic fever*. It has Three Phases – *Febrile, Critical, and Recovery*. Its symptoms include continuous fever 40°C (104°F) lasting 2-7 days, hemorrhage, thrombocytopenia, dehydration, an increase in hematocrit, pleural effusion, headache, myalgia, arthralgia, rash, hypotension, abdominal pain, vomiting, and ascites. Encephalopathy, myocarditis, Guillalain barre syndrome, decreased the level of consciousness and myelitis are the major complications involved in dengue. Major warning signs of dengue were given in table1. The mechanism of dengue infection is started with a mosquito bite, leading to virus multiplication inside the body that causes organ damage like bone and liver. Furthermore, shock, dysfunction of bone marrow may result due to the leakage of fluid from the blood stream and the destruction of stromal cells in bone, which causes an increased risk of thrombocytopenia. It is diagnosed by CBC, positive results in tourniquet test, BP fluctuations, Bleeding Time, no. of petechiae, NS 1 antigen, ELISA, elevated levels of aminotransferase, and leukopenia. Before and after introducing the drug Caripill the treatment of dengue is given in table 2 and table 3. In table 3 some particulars showed must not practice in the treatment of dengue, lead to severe complications. There are no particular antiviral and antibiotics to treat the dengue, due to zero effectiveness on virus^{1, 2, 3, 4}.

Table No 1: Warning signs of dengue fever

| WARNING SIGNS OF DENGUE |
|---|
| Worsening abdominal pain |
| Ongoing vomiting |
| Enlargement of liver |
| Mucosal bleeding |
| High haematocrit combined with low platelet count |
| Lethargy and restlessness |
| Serosal effusion |

Table 2: Treatment inclusions for dengue fever

| S. No | Inclusive Particulars | Rationale |
|-------|--|--|
| 1 | Oral rehydration therapy (Who are able to drink and passing urine) and intravenous hydration | <ul style="list-style-type: none"> • Fluid balance • Haematocrit |
| 2 | Paracetamol (Acetaminophen) | <ul style="list-style-type: none"> • Fever |
| 3 | Blood transfusion packed red blood cells or whole blood | <ul style="list-style-type: none"> • Haematocrit, circulation |

Table 3: Treatment exclusions for dengue fever

| S. No | Exclusive Particulars | Rationale |
|-------|--|---|
| 1 | Antiviral and antibiotics | Zero effectiveness |
| 2 | Invasive medical procedure – Nasogastric intubation, intramuscular injection, arterial punctures | Bleeding risk |
| 3 | NSAIDS – ibuprofen, aspirin | Risk of bleeding |
| 4 | Platelet and fresh frozen plasma transfusion | Ineffective in preventing bleeding |
| 5 | In recovery phase – discontinuation of IV fluids | Edema (fluid overload), diuretics usage must all over again |

CARIPILL DRUG INFORMATION

Carica papaya belonging to family *Caricaceae*, it contains polysaccharides, vitamins, minerals, enzymes, proteins, alkaloids, glycosides, fats and saponins, flavonoids, sterols etc. the literature proved that it has several therapeutic effects such as antihelminthic, anti-bacterial, anti-inflammatory, antioxidant, immunomodulatory effect (increase the production of signaling molecules such as T helper 1- type cytokines) and as well as in the treatment of dengue fever. The Pharmacology of Caripill includes, it possesses membrane stabilizing properties and protect blood cells against stress-induced destruction. We know that carica rich in *papain*, which induces IL -6 secretions. An increased level of IL – 6 in stem cells and leukocytes leads to the production of thrombopoietin in the liver which is major cytokine involved in megakaryopoiesis and thrombopoiesis and finally results in increased levels production of thrombocytes. The gene arachidonic 12-lipoxygenase (ALOX 12) and platelet-activating factor receptor (PTAFR) plays an important role in platelet production. ALOX 12 influence PTAFR result in platelet production and aggregation. In megakaryocytes, ALOX 12 gene is been responsible for the 12-hydroxyeicosatetraenoic acid production of platelets. PTAFR genes are expressed in higher folds and leading to increased platelet production and aggregation in patients consuming Caripill⁴.

TRIVIA OF CARIPILL

The drug Caripill launched by micro labs, Bengaluru, and the clearance was received from Department of Ayush. The principal investigator Dr.A.C.gowda was conducted Clinical trial among 300 hundred patients, showed promise results without the need of blood transfusions. The drug can available in Indian market only, but Jayaraj G, executive vice president, marketing, and corporate communications, micro labs said that other South East Asia specifically Indonesia came to enquire for Caripill^{5,6}.

Table 4: Caripill drug information

| S. No | Caripill Drug Information | |
|-------|---------------------------------------|---|
| 1 | Dose and Dosage Administration | <ul style="list-style-type: none"> • Each tab contains 1100mg of carica papaya leaf extract and taken three times a day, for five days. |
| 2 | Indications | <ul style="list-style-type: none"> • Dengue • Malaria • Typhoid fever • Immunomodulator • Platelet booster • Acute microbial infection • leukaemia |
| 3 | Contraindications | <ul style="list-style-type: none"> • Pregnancy • In sensitive people, it may cause severe allergic reactions (Hypersensitivity) |
| 4 | Adverse Reactions | <ul style="list-style-type: none"> • Carotenemia • Yellowing of soles and palms • At high doses may cause stomach irritation |
| 5 | Drug Interactions | <ul style="list-style-type: none"> • Delays the onset of hypoglycemic activity of glimepiride, and increases the hypoglycemic effect of metformin. |

CONCLUSION

Caripill is a first drug to treat the patient with dengue fever in view of platelet production. Financial burden reduces as compare with prescription with and out prescription of a drug. The International anti-dengue day is on June 15th and awareness programs are needed to awake the people on dengue fever causes, warning signs, treatment, precautions, and the importance of hygiene.

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