A Study of Haematological Profile among Patients with Dengue Fever

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Abstract: *Dengue virus is the most common arbo virus found in India. It is transmitted by Aedes aegypti. Dengue fever is a febrile illness caused by the arbo virus. Altered haematological parameters and serological parameters play an important role in the diagnosis of dengue fever.*

Keywords: Thrombocytopenia, leukopenia, DENV, Markers

1. Introduction

Dengue fever is vector borne viral infection. Dengue fever is a febrile illness caused by one of four serotypes of the dengue fever including (DEN 1, DEN 2, DEN 3, DEN 4) have been reported, the fifth serotype (DEN - 5) was discovered from Bangkok. It shows variety of clinical presentation ranging from asymptomatic to a dengue fever and more severe form dengue haemorrhagic fever.

- A retrospective case series study concluded that MCV, MCH. HCT &PCT, RBC count &Platelet count were significantly lower in patients with dengue fever.
- A study of clinical and haematological profile of Dengue cases in a tertiary care hospital found that thrombocytopenia, leucocytosis and increased haematocrit.
- Rai et al found that significant change in platelet count and other peripheral blood parameters
- Alisha Naeem outlined that differential leukocyte count and platelet count is the early indicators of Dengue infection
- J Carolinerose et al found that haematological parameters associated with dengue infection are leucopenia, haematocrit, decreased haemoglobin, and thrombocytopenia.

2. Materials and Methods

The study was carried out in confirmed dengue patients. The study population was mainly the younger population to monitor the effect of dengue virus on different haematological parameters.

3. Result

The mean platelet count is 88748.21 is significantly reduced in dengue infected patients compared to control and the p value is <0.0001 is significant. In addition to platelet level, the mean value of WBC level is 5.8 (p value <0.0001) is significant in dengue infected patients and the mean values of pcv is 46.61 is not significant in dengue infected patients (p <0.0003). There was a significant reduction in the platelet count in dengue confirmed patients compared to control. . There was little bit statistically significant changes in mean value of ESR & hb level in dengue confirmed patients compared to non dengue infection.

Table 1: Altered Haematological Parameters in Dengue Patients

Parameters	Control	Dengue confirmed patients	Laboratory negative dengue patients	P - Value
Platelet count / µl	183430±55114	88748.21±37501	101041±43414	<0.0001
Haemoglobin (gm%)	12.14 ±1.247	11.16±1.15	12.79±1.28	<0.0001
ESR (mm/hr)	10.2±1.3	10.8±2.3	10.1±3.1	0.0681
WBC (x 103/µl)	6.2±1.3	5.8±1.1	6.0±1.4	<0.0001
PCV (%)	42.6±5.10	46.61±5.11	45.10±5.1	0.0003

Table 1: Altered Haematological Changes in Dengue Fever in Various Studies

Author	Year	Study Design	Population	Findings
Rai. A et al	2019	Prospective	2022	P<0.05
Mohammed Salah Debes et al	2007 - 2014	Retrospective	3277	P - 0.03
Payal mukker et al	2018	retrospective	123	P<0.001

4. Conclusion

The study was carried out to find out the altered haematological parameters in dengue infected patients. The findings of the study concluded that the haematological profile of thrombocytopenia, changes in WBC count, PCV, MCV, MCH, ESR, HB. fever myalgia, arthralgia, abdominal pain are common symptoms associated with dengue fever. Altered haematological parameters, serological tests and other clinical markers help in the early diagnosis of dengue fever. Continous monitoring and surveillance will minimize the complications.

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