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Serum cortisol in dengue and dengue hemorrhagic fever: is there any clinical implication?

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PEER REVIEW

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This is a good laboratory study on a limited mentioned laboratory value on the important tropical infection, dengue infection. It is valuable in the practitioner who has to deal with dengue.

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ABSTRACT

Dengue is an important mosquito-borne viral infection. This infection can be seen in many tropical countries and caused many infectious cases annually. The biochemical profile change during infection is very interesting. Here, the authors studied on a rarely mentioned parameter, serum cortisol. The levels of serum cortisol in the cases with dengue and dengue hemorrhagic fever were studied, reported and discussed.

KEYWORDS

Cortisol, Dengue, Fever

1. Introduction

Dengue is an important mosquito-borne viral infection^[1–3]. This infection can be seen in many tropical countries and caused many infectious cases annually. Based on its pathogenesis, the alteration of physiology can be seen and this can affect laboratory findings^[4]. The biochemical profile change during infection is very interesting. Here, the authors studied on a rarely mentioned parameter, serum cortisol. The levels of serum cortisol in the cases with dengue and dengue hemorrhagic fever were studied, reported and discussed.

2. Materials and methods

This work is a descriptive study. Overall 100 patients, 72 with dengue and 28 with dengue hemorrhagic fever were studied. For each case, after routine laboratory study, the left serum was further analyzed for the serum cortisol level. The standard biochemical analysis under quality control was done. The descriptive statistical analysis was used where it was appropriate. The significant level was set at $P < 0.05$.

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3. Results

The average serum cortisol levels in the patients with dengue and dengue hemorrhagic fever are equal to (646.2 ±65.4) nmol/L and (844.6±45.2) nmol/L respectively. The average serum cortisol level in the patients with dengue hemorrhagic fever is significantly higher than that of the patients with dengue fever ($P<0.05$).

4. Discussion

Dengue infection is still the public health threat of the world. This disease can manifest in either mild form which is called dengue fever or severe form with hemorrhagic complication which is called dengue hemorrhagic fever[5]. During infection, there are several pathophysiological changes, especially in hematological system. Focusing on the biochemical parameters, there are few reports on it.

Focusing on the cortisol, which is an important hormone, there are some reports on its level in course of dengue infection[6,7]. Myo-Khin *et al.* studied serum cortisol in dengue patients and reported “no cortisol insufficiency in cases of dengue hemorrhagic fever during acute and convalescent stages of illness[6].” In our work, we found that the average serum cortisol level in the patients with dengue hemorrhagic fever in our study was higher than that of the patients with dengue fever. This might imply that serum cortisol might be a possible biomarker for severe dengue infection. Also, as already observed by Myo-Khin *et al.*[6], the high level of cortisol in the patients confirmed the uselessness of steroid therapy in dengue[8,9].

The average serum cortisol level in the patients with dengue hemorrhagic fever in our study is higher than that of the patients with dengue fever. This might imply that serum cortisol might be a possible biomarker for severe dengue infection. Nevertheless, further studies are needed for final conclusion.

Conflict of interest statement

We declare that we have no conflict of interest.

Comments

Background

An interesting clinical biochemical study on a well-known mosquito-borne infection, dengue. The scope of the manuscript is within the area of tropical medicine and infectious disease.

Research frontiers

It is a limitedly known area of clinical biochemistry on infectious disease. The study parameter is basic but not

widely known in the field. The work has originality in term of idea and clinical issue.

Related reports

There is no previous report on this issue. Although there are some similar papers on the studied parameters but they are not in the same style of the study.

Innovations & breakthroughs

It is an innovation to investigate the new clinical parameter for diagnosis and management of the dengue. The work remains high usefulness in clinical aspect.

Applications

The results from this work can be applicable for actual clinical practice. The reader can make use of the data for implementation in general practice for management of the patients with dengue. The further study on the parameter can be possible based on the present report.

Peer review

This is a good laboratory study on a limited mentioned laboratory value on the important tropical infection, dengue infection. It is valuable in the practitioner who has to deal with dengue.

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