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Mini Review

Dengue: An Overview of Pathogenesis and Analysis of Disease

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ABSTRACT

Dengue as a viral infection was or is a serious issue. With the time this viral infection changes within it's environment. Researches are conducted to completely know the genome of dengue as well as it's long lasting treatment. Both flaviviruses and mammalian cells produce NS1 and induce strong humoral responses in circulation. NS1 levels correlate with viral titer and can be used as a viremia marker. The disappearance of NS1 at high concentrations between low nanograms per milliliter and micrograms per milliliter was determined using numerical ELISA detection. NS1 levels as high as 600 nanograms per milliliter during secondary infection have been found to indicate high levels of severe disease within his first 72 hours of illness.

INTRODUCTION

Dengue as a viral infection was or is a serious issue. With the time this viral infection changes within it's environment. Researches are conducted to completely know the genome of dengue as well as it's long lasting treatment. However biological science already solved many queries about dengue but still there is lot of work needed to be done on this viral infection.Viral dengue is the known viral contamination that affects human beings largely [1]. Historical perspectives relates the dengue fever with "poisen of water"to flying bugs in the clinical encyclopedia of China. The word dengue originates from the Swahili language word Ka-dinga pepi, means "hinder similar occupation" [2]. Equatorial and subtropical areas are the most exposed areas to dengue. Dengue virus DENV has four genetically and serologically different serotypes. 27 DENV has three structures and seven mon structural proteins. DENV are more fatal virus due to its secondary infection with hetrological virus [3]. Lack of awareness and social knowledge about dengue creates a disagreement among people [4]. Dispute begins with various questions, four dengue serotypes are further divides on the basis of nucleotides contrast among genotypes. Dengue pathogenesis and immune responses play a significant role in catching disease(5). After secondary infection severe disease is normal. Events take place in body including the fall of neutralizing antibodies and the complex between sub neutral antibodies and viruses results in more viral load leads to severe dengue [5]. Queries arised for the vaccine of dengue in the Philippines as the Children got new diseases after taking vaccines [6]. DENV is the lipid-covered particle and has structural proteins attached to it. Inside the envelope there is a complex of ribonucleoprotein attached to a single stranded RNA. The M protein is the precursor protein , With the C terminal the E proteins are attached to viral envelope. Viral genome entry route is through E- protein mediated membrane fusion [7]. Viral

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RNA involved in 3 steps of virus infected cell. Viral proteins formed by mRNA. With a 5'- cap and formation and a 3'-poly(A) tail viral RNAs are linked to poly A binding proteins and cap binding complex [8]. TRIZOL viral RNA that was removed from transfected cells of media of 200 µl. It was designed to louden not 1 to 1451 at the 5' end and not 10201 to 10723 at the 3' end in reverse transcriptase PCR (RT-PCR By using big dye terminator chemistry and ABI 377 automated DNA sequence RT-PCR products were sequenced [9].Freshly isolated platelets were fixed with 4% glutaric-aldehyde at °0 C in PBS. Overnight and washed once with PBS followed by three washes with pH 7.3 phosphate buffer (3444 minutes each). Platelets were then incubated with 2% phosphate-buffered osmium tetroxide for 45 minutes, washed with g of distilled water, and stained with 2% uranyl acetate in water at 25 degrees Celsius for 30 minutes. The samples were prepared at room temperature by successive incubations of dehydrated in 70% And 80% ethanol for 1.5 min, and 90% and 95% absolute ethanol and propylene oxide for 3 min (2-3 times for every step). The samples were then soaked with propylene oxide and epoxy resin mixture (50: 50) at 37°C for 30 minutes, followed by soaking with the epoxy resin Mixture alone at 37°C for 120 minutes. Samples embedded polypropylene capsules, polymerized overnight at 70°C. Identification of the dengue virus can be done mostly by the using method of real-time PCR. DENV can also be detected by several other methods such as viral antigen and genome detection, antibody detection, and ELISA. However, these techniques are not effective for DENV confirmation, so real-time reverse transcriptase RT-PCR is mostly usedThe circular motion of viral genome is observed during RNA-RNA interaction through atomic force microscope. The serootype confirmation of dengue virus RNA in 20 to 25 early serum samples while the past 30 samples with excessive anti-dengue lgt assembled but no viral RNA can be detected between 5 to 31 days. A sample was taken after 5 to 31 days when the RNA can be detected by observing through micro seize ELISA. DNEV identification is mostly done by real time pcr (RT-PCR) dengue virus serotypes can also be detected through it. Testing of DENV can be made through urine, serum, plasmDEN detection through urine involves the sample taking it's filtration and then the sample are cultured in a plate innoculated with Vero cells. After incubation, washing with phosphate buffered saline and with FCS samples are ready to check to the presence of DENV [10-12]. Virus lgM anti dengue antibodies are detected by Elaisa kit and detection of lgG antibodies by indirect Elaisa kit. The serological tests of DENV includes neutralization test, hemagglutination inhibition, indirect immunoflourescence antibodies test. These are easily detectable within 3 to 5 days. About 95% of patients develope lgM between 6 to 10 days. ELAISAs E protein are broadly used antigen for all the type of serotypes of DENV [13, 14]. The serological test consists of a fast immunochromatography test, an enzyme-linked immunosorbent assay, a neutralisation test, a hemagglutination inhibition test, an indirect immunofluorescence antibody test, and a complement fixation test [15, 16]. Both flaviviruses and mammalian cells produce NS1 and induce strong humoral responses in circulation. NS1 levels correlate with viral titer and can be used as a viremia marker. The disappearance of NS1 at high concentrations between low nanograms per milliliter and micrograms per milliliter was determined using numerical ELISA detection. NS1 levels as high as 600 nanograms per milliliter during secondary infection have been found to indicate high levels of severe disease within his first 72 hours of illness. With its high level of sensitivity and specificity, her NS1 as a diagnostic segment has revolutionized therapeutic approaches [17, 18]. In the secondary infections the presence of dengue viral antigens in serum is relatively low. The virus infects salivary gland in the hemocoel In lymphoid organs, such as the liver and lung, cells of the monocyte-macrophage lineage have been shown to contain dengue virus infection antigen. When dengue RNA from infected patients was used in reverse transcription, it confirmed liver involvement in the clinical presentation of DHF. The non-structural protein NS1 is necessary for the survival of DV. In the blood of DV-illness patients, the NS1 antigen has acted in the presence of an elevated level of enzyme-linked immunosorbent tests [19, 20].

CONCLUSION

NS1 levels as high as 600 nanograms per milliliter during secondary infection have been found to indicate high levels of severe disease within his first 72 hours of illness.

Conflicts of Interest

The authors declare no conflict of interest

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