EDITORIAL

Dengue Fever and Hepatic Enzymes

Dengue is the arbo viral disease, and now it is the highest incidence in the world among the viral disease.The principal vector is adesagepty which breeds in standing water, collection of water in container, water based air cooler, flower tubs and tyredumps.There are four serotypes of dengue virus (DENV-1, DENV-2, DENV-3, DENV-4) belonging to the Flaviviridaefamily , and presenting with similar symptoms.Type specific immunity is lifelong but immunity against other serotypes lasts only a few months. Clinical presentation varies from no symtomps to dengue shock syndrome. The common presentation is the dengue fever and dengue hemorrhagic fever[1,2]. Till now about 100 million of cases of DF has been reported to WHO. Every year between 250000 to 500000 new cases of DF also reported to WHO. In last decade dengue was dramatically increased in south Amertica mainly in Ecuador, Columbia, Peru and Venezuela[2].

In Bangladesh dengue occurred sporadically from 1964. An epidemic occurs in 2000 established the virus. This epidemic was may be due to coming of a dengue virus strain from a nearby endemic country, probably Thailand. Previously there was spraying of dichlorodiphenyltrichloroethane (DDT) in our country but now it has stopped. Also the climatic change, socio-demographic, and lifestyle factors also contributed to epidemic transmission. The highest number of cases was notified in 2002 and since then the outbreaks have generally declined, although with increased notifications in alternate years. This apparent decrease may be partially due to public awareness with consequent reduction in mosquito breeding and increased prevalence of immunity[3].

There is direct and in direct evidence of biochemical alterations related to severity of dengue. Several studies revealed thatpatient with DHF have elevated serum levels of transaminases -aspartate aminotransferases [AST] and alanine aminotransferases [ALT], lactate dehydrogenase and creatine kinase (CK). Also DHF have elevated levels phospholipase A2, a protein whose concentration is correlated with that of C –reactive protein (CRP)[4]. Several studies also showed that there is differences in serum levels of cholesterol and triglyceride associated with severe form of DHF[5]. But this potential biochemical markers have not been well evaluated in early stages of dengue.So, this is very important to evaluate the biochemical alterations for timely identification of patients who will develop DHF is unknown. Hepatic dysfunction is a crucial feature seen in DENV infection. Hepatocytes and Kupffer cells are prime targets for DENV infection as confirmed in biopsies and autopsies of fatal cases[6]. It has been postulated that the binding of DENVs onto hepatocytes is facilitatory, one binding promotes the binding of successive particles, similar to binding of oxygen on hemoglobin. After binding of the virus, internalization is by either direct fusion or endocytosis. The entry pathway may either be mediated through the presence of receptors or even in their absence[7].

An eventual outcome of hepatocyte infection by DENV is cellular apoptosis, a phenomenon demonstrated both in vivo and in vitro. After apoptosis, what stays of the cells are the Councilman Bodies. The various pathways involved in this apoptotic process include viral cytopathy, hypoxic mitochondrial dysfunction,

the immune response and accelerated endoplasmic reticular stress[8]. In dengue fever associated liver failure, AST levels are more often elevated than ALT levels, a pattern that may be useful to distinguish from the diagnosis of other classical hepatotropic viruses such as Hepatitis A, B or C infection, where ALT levels were usually higher than AST level. This was postulated to be due to AST released from damaged myocytes.

WHO classification of dengue diseases is often not feasible in many countries because of lack of trained health professionals, adequate laboratories, and radiologic support. The facilities to detect DHF by using hematocrit (capillary method) and plasma leakage signs (chest radiograph or ultrasound) are not readily available in many tropical countries. Successful treatment of dengue depends on symptom recognition and careful fluid management[8]. Thus, a simple classification scheme of dengue diseases based on symptoms and signs are needed to improve case management and reduce deaths.

References:

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