

# Clinical manifestations and risk factor evaluation of dengue hemorrhagic fever in Taiwan

## Abstract

**Purpose:** Dengue fever is the most widely distributed mosquito-borne flaviviral disease. It is estimated that more than 50 million people were infected annually. Dengue hemorrhagic fever (DHF), without doubt, deserves the public concerns. In Taiwan, more than five thousand people were infected with dengue fever, resulting in 242 mortalities in 2002 epidemic. In the following years, there were no more large outbreak of dengue fever till the 2006 epidemic with more than 900 cases of dengue fever and 19 cases of DHF. Because of the intimate relationship between the dengue-endemic southeast countries and Taiwan, occurrence of another dengue epidemic is highly possible. It is the responsibility of the health authority to prepare the physicians caring the dengue-infected victims with adequate knowledge.

**Methods:** A retrospective analysis of patients with DHF from 1999 to 2006

**Finding:** DHF mainly involves adults in Taiwan. Among the 292 DHF cases, only 11 cases were under the age of 15 years old. Although male gender outnumber female in totality, female predominated in those more than 40 years old. 27 persons died of DHF and most of them were the elderly with multiple co-morbidities, especially diabetes mellitus. Up to 47% DHF patients had abdominal discomforts and symptoms typical of dengue fever were not frequently seen as we expected. Among the 19 DHF cases in 2006, 7 patients were primary infection.

**Conclusion:** The elderly and those with co-morbidities, especially diabetes mellitus, have higher case fatality rate of DHF. Although secondary dengue infection was viewed as the major risk of developing DHF, many DHF cases in Taiwan were with primary infection. Significant elevation of hepatic enzymes and persistent abdominal discomfort were common findings in our study and many fatal cases complicated with massive gastrointestinal bleeding.

**Suggestion:** The health care workers should pay more attention to the elderly DHF patients or those with co-morbidities. Persistent abdominal discomfort and significant elevation of hepatic enzyme usually predicted the occurrence of DHF. When physicians report DHF cases, lots of data relevant to DHF criteria suggested by WHO were lacking which hinted the inadequate understandings about DHF among the local physicians. The health authority should do their best to well prepare the physicians with adequate knowledge about DHF.

**Key words:** dengue fever, dengue hemorrhagic fever, case fatality rate, adult, serotype, primary infection, secondary infection