Gastroendoscopic Manifestations in Dengue Fever Patients

Zina Abdulkareem Al Zahidy*, Esraa Ahmed Alshareef, Wail Omar AlGorashi, Abdulelah Ahmad Alahdal, Afnan Mohammed Al Malki, Sara Abdullah Turki, Faraaz Sanai, Salem Hisham Jobah, Logeen Khalid Yamani, Abdullah M Al Asiri, Maha K Al-Zahrani, Mohammed A Alammari, Ahad S Abdullh and Noor Saleh Alsaedi

Department of Gastroenterology, Department of Internal Medicine, King Abdulaziz Hospital Jeddah, Saudi Arabia

*Corresponding Author: Zina Abdulkareem Al Zahidy, Department of Gastroenterology, Department of Internal Medicine, King Abdulaziz Hospital Jeddah, Saudi Arabia.

Abstract

Background: A good description of the clinical manifestation that the dengue patients suffer from has a huge effect on our study.

Keywords: Dengue Hemorrhagic Fever (DHF); Mortality Prevention

Introduction

Dengue fever is the most dangerous mosquito-borne viral infection in the world [1]. Clinically, dengue ranges from asymptomatic, nonspecific febrile illness, classic dengue, to dengue hemorrhagic fever [1]. Mortality rate and causes of death in dengue patients varied from one patient to another [1-13]. There is also Dengue shock syndrome that is responsible for death in a lot of patients [2,10,12-14]. However, only a small number of dengue-attributed mortality cases were included for analysis in each of these series [2,8,10-12]. A good and early description of clinical and laboratory findings has a major rule in preventing the mortality rates. according to this , the importance of continuous analysis of relevant findings in severely ill patients cannot be overemphasized [13-14]. A P value 0.05 was considered statistically significant. We conducted the study in accordance with the Declaration of KAAH [15-16]. All dengue patients who had dengue fever and were going for endoscopy were informed about the procedure and its side effects and what might go wrong with it and the 've signed on a written consent [17].

Among the dengue fever patients huge amount in Saudi Arabia, a huge amount of the disease was caused by DENV-1 And DENV-2 [18]. During the 2009 dengue epidemic in Saudi Arabia , more than1500 dengue cases were reported, and most of them were having gastro intestinal bleeding [18,19]; of note, dengue-related mortality was found in 9 adults admitted at King Abdul-Aziz Hospital (KAAH), a 900-bed facility serving as a primary care and tertiary referral center in this area. In our study, we have compared the clinical and laboratory findings of dengue-affected patients who their faith was death and who survived, and analyzed the fatal dengue cases aiming at understanding the causes of mortality and clarifying the clinical and laboratory evolutions [20].

Methods and Findings

We have found that there are over 95 million cases of dengue infection, 150,000 cases of dengue fever with GI bleeding, and 25,000deaths annually due to dengue worldwide. Endoscopic finding such as gastrointestinal bleeding is the most common type of severe hemorrhage in dengue fever. However, there are no reports about the clinical applications of endoscopic therapy for upper gastrointestinal bleeding (UGI) in dengue patients. From March 15, 2009 to may 8, 2010, 1,250 patients with confirmed dengue virus infection were treated at

King Abdul-Aziz Hospital, Jeddah, Saudi Arabia. Among those experienced early altered consciousness, massive GI bleeding alone/with uremia/with E. faecalis bacteremia, higher proportion of bandemia from initial (arrival) laboratory data in fatal patients as compared to controls, and higher proportion of pre-fatal leukocytosis and lower pre-fatal platelet count as compared to initial laboratory data of fatal patients were found. Among the 800 dengue patients, (6.2%) had complications of UGI bleeding during hospitalization. The endoscopic findings included hemorrhagic (and/or erosive) gastritis in 33% of the patients, gastric ulcer in 29.5%, duodenal ulcer in 16.5%, and esophageal ulcer in 2.3%. Of the 73 patients with peptic ulcer, 33 (34.3%) met the endoscopic criteria (recent hemorrhage) for endoscopic homeostasis therapy. Among these 33 patients with recurrent hemorrhage, endoscopic injection therapy was conducted in 15 patients (group A). The other 27patients (group B) did not receive endoscopic therapy. There were no significant differences between groups A and B in duration of hospital stay and amounts of transfused platelet concentrate after endoscopy.

Results

Seventy-five (6.2%) of 1,050 patients had major complications of gastric intestinal bleeding during the disease period. Thirty of these patients were male and 27 were females. (14.4%) of the 72 patients had a history of gastritis. None of the patients with gastritis had used nonsteroidal anti-inflammatory drugs, aspirin, or steroids before or during hospitalization. Most of the patients come with fever in 56 cases (72.4%), bleeding per rectum in 45 (51.2%), hematemesis in 15(8.2%), and abdominal pain in 11 (11.3%). The gastro intestinal bleeding occur just after the fever by 3 - 4 days and it lasts with a duration of one week. According tom the bleeding 26 (25.2%) of patients start to develop thrombocytopenia, and decrease in hemoglobin in 33 (34.5%). Prolonged prothrombin time and activated partial thromboplastin time were observed in 4 (5.4%) of 57 and 43 (50.1%) of 47 patients, respectively. The mean ± SD amounts of blood components transfused were 16.3 ± 10.2units of platelet concentrate, 1.2 ± 2.7 units of packed red blood cells (PRBCs), and 1.1 ± 2.1 units of fresh frozen plasma (FFP). Endoscopic findings and their rate of incidence are shown on Table 1. Upper GI bleeding was the most common finding among these patients (51.2%), fol-lowed by gastritis (49.7%), duodenal ulcer (22.3%), and esophageal ulcer (2.1%) (Table 2).

Demographic Ch.Ch	
Major of gastric intestinal bleeding complications ≃ total 75	(6.2%)
Male	30
female	27

| Presenting History		
Gastritis		(14.4%)
Fever	56	(72.4%)
Bleeding Per Rectum	45	(51.2%)
Hematemesis	15	(8.2%)
Abdominal Pain	11	(11.3%)
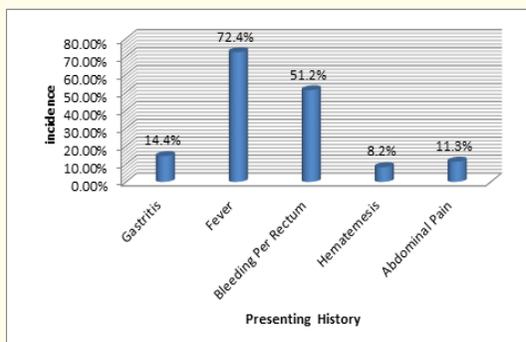
Among the 52 patients with gastritis, 35 (45.3%) had endoscopic findings that has confirmed the fact of hemorrhage, and that is a major n indication for the need for endoscopic hemostasis therapy (Table 3). The differences between the clinical finding and the transfusion need between the gastritis patients with hemorrhage and non-hemorrhagic patients are shown in Table 4. There were no significant differences in age, sex, lowest platelet count, PT, APTT, duration of hospital stay, rebleeding rate, mortality rate, and amounts of transfused platelet concentrate between patients having gastritis with and without recent hemorrhage. But, there was a noticeable difference in transfusion requirements of PRBCs and FFP. Gastritis patients with recent hemorrhage required more trans-fusions with PRBCs and FFP for management of UGI bleeding than those without recent hemorrhage. Among the 35 patients with gastritis and recent hemorrhage, endoscopic injection therapy with 6 - 10 mL of epinephrine diluted 1:10,000 was given to 9 patients (group A), whereas the other patients (group B) did not receive endoscopic therapy due to the awareness of the doctors of an underlying bleeding tendency or intolerance and poor compliance of the patients. After the endoscopic procedure, medical treatment with intravenous PPI had been used in all 35 patients until the bleeding stopped, and an oral PPI was then prescribed. Comparing between the clinical findings and transfu-sion requirements between groups A and B is shown in Table 5. There were no significant differences in age, sex, lowest plate-let count, PT, and APTT between groups A and B. The average duration of hospital stay after endoscopy was 5.4 days in group A and 3 days in group B, by Mann-Whitney U test). The hemorrhage rate was 4.3% (1 of 10) in group A and 1% (0 of 16) in group B, by Fisher's exact test). We found a significant differences in transfusion requirements of PRBCs and FFP (by Mann-Whitney U test) after the procedure of endoscopy in groups A and group B, there was no significant difference in transfusion requirements of platelet concentrate after endoscopy. After endoscopy, patients in group A required more transfusions with PRBCs and FFP than patients in group B. there was no surgical interven-tion to stop UGI bleeding. In general, the overall mortality rate was 1.2%. There was no significant difference in mortality rate between groups A and B.

Coagulation profile		
Thrombocytopenia	26	(25.2%)
Decrease in hemoglobin	33	(34.5%)
Prolonged prothrombin time	4	(5.4%)
Activated partial thromboplastin time	43	(50.1%)

Coagulation profile
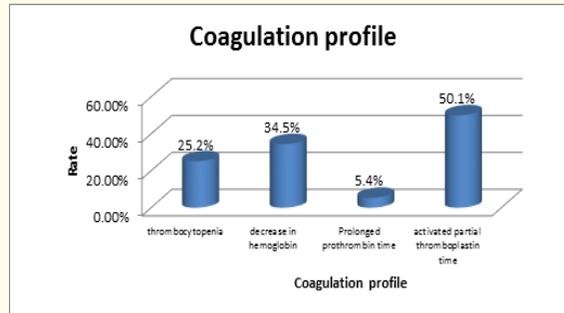
Amounts of blood components transfusion	
Platelet concentrate	16.3 ± 10.2 units
Packed red blood cells (PRBCs)	1.2 ± 2.7 units
Fresh frozen plasma (FFP)	1.1 ± 2.1 units

Rate and incidence of Endoscopic findings	
Upper GI bleeding	(51.2%)
Gastritis	(49.7%)
Duodenal ulcer	(22.3%)
Esophageal ulcer	(2.1%)
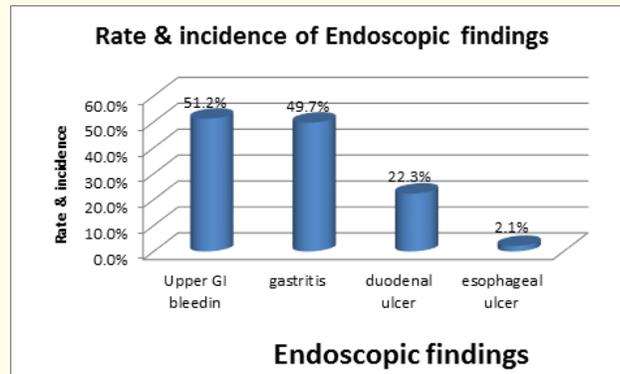
Indication for the need for endoscopic hemostasis therapy		
Gastritis	52	
Hemorrhage	35	(45.3%)

The hemorrhage rate by Fisher's exact test		
Group A	(1 of 10)	4.3%
Group B	(0 of16)	1%

Conclusions

Our study has discovered that there are a huge amount of patients who have severe dengue sufferings from gastro intestinal bleeding, and decrease in blood test or any abnormality in it may be warning signs of severe dengue. Doctors should be aware of the possibility of development of severe GI bleeding, especially in patients with altered consciousness, and decrease in platelet count, prolonged PT and/or leukocytosis. Prophylactic antibiotic(s) should be used for patients at risk for bacteremia until it is proven otherwise, especially in those with obvious signs and symptoms.

Discussion

Gastro intestinal bleeding one of the major problems in dengue fever patients, and it can lead to worsening of the disease and increase mortality rates [1-2]. The hemorrhagic period appears during the third to fifth day of the illness, after the onset of fever. The hemorrhage include different sites of the body include vasculopathy, platelet deficiency and dysfunction, and blood coagulation defects. The most common manifestations of bleeding are epistaxis, skin hemorrhages, and upper GI bleeding [3]. The reported number of upper GI bleeding in dengue patients ranges from 3% to 24% [3-5]. Most of it occurs on the fourth day after the onset of fever [4-6]. The most severe decrease in platelets was found on days 3 - 4 after the onset of fever .In addition, almost all of the dengue patients recovered after 7 - 15 days [7]. Our study has showed that UGI bleeding developed in 6.3% of the 1,050 patients and occurred a median of 4 - 3 days after the onset of fever, with a median duration of hospital stay of 7 days [7-8]. During this period of thrombocytopenia, blood transfusion therapy with platelet concentrate, PRBCs, and FFP became the mainstay of treatment to correct the bleeding tendency, anemia, coagulopathy, and hypovolemic shock [8]. The reports that has been done to evaluate the endoscopy findings of the disease has showed that dengue fever patients with UGI bleeding, hemorrhagic gastritis was the most common in a percent of (20.7–45.3%) [9,10]. In this study, upper GI bleeding was on of the most common finding in these patients (51.2%), followed by gastric ulcer (49.7%), duodenal ulcer (22.3%), and esophageal ulcer (2.1%). Also we have found that there were no differences in lowest platelet count, PT, and APTT between dengue patients having gastritis with and without recent bleeding attacks [11]. In our study we have conclude that there were no differences in recurrence of bleeding and mortality rate between dengue patients with gastritis with bleeding and without recent bleeding [12]. However, more transfusions of PRBCs and FFP were required with the presence of recent hemorrhage in bleeding gastritis. However, bleeding gastritis can be treated effectively with the standard endoscopic therapies including injection therapy, coagulation therapy, and mechanical therapy [13,14].

A lot of patients has recorded bleeding from the injection sires of the coagulation injection therapy. For this reason a lot of patients require more transfusions of PRBCs and FFP after the dengue patients received endoscopic injection therapy [15]. According to that, blood transfusion therapy with platelet concentrate, PRBCs, and FFP to correct the bleeding tendency, anemia, coagulopathy, and hypovolemia is still the mainstay of treatment of UGI bleeding in dengue patients [16,17]. Patients having gastritis with recent bleeding require more transfusions with PRBCs and FFP for management of UGI bleeding than patients who without recent bleeding attacks [18]. We have also came to the conclusion that if patients with gastritis had recent bleeding attacks will gain no benefit from endoscopic procedure, endoscopic injection therapy as an adjuvant treatment of hemostasis in dengue patients with gastro intestinal hemorrhage [19,20].

Acknowledgment

Bibliography

1. Guzman MG and Kouri G. "Dengue: an update". *Lancet Infectious Diseases* 2.1 (2002): 33-42.

2. Sumarmo, *et al*. "Clinical observations on virologically confirmed fatal dengue infections in Jakarta, Indonesia". *Bulletin of the World Health Organization* 61.4 (1983): 693-701.

3. Tassniyom S., *et al*. "Failure of high-dose methylprednisolone in established dengue shock syndrome: a placebo-controlled, double-blind study". *Pediatrics* 92.1 (1993): 111-115.

4. Nimmannitya S. "Dengue fever/dengue haemorrhagic fever: case management". *Tropical Medicine (Nagasaki)* 36.4 (1994): 249-256.

5. Rigau-Pérez JG., *et al*. "Dengue and dengue haemorrhagic fever". *Lancet* 352.9132 (1998): 971-977.

6. Kourí G., *et al*. "Reemergence of dengue in Cuba: a 1997 epidemic in Santiago de Cuba". *Emerging Infectious Diseases* 4.1 (1998): 89-92.

7. Halstead SB. "Is there an in apparent dengue explosion?" *Lancet* 353.9158 (1999): 1100-1101.

8. Guzmán MG., *et al*. "Fatal dengue hemorrhagic fever in Cuba, 1997". *International Journal of Infectious Diseases* 3.3 (1999): 130-135.

9. Ranjit S., *et al*. "Aggressive management of dengue shock syndrome may decrease mortality rate: A suggested protocol". *Pediatric Critical Care Medicine* 6.4 (2005): 412-419.

10. Kamath SR and Ranjit S. "Clinical features, complications and atypical manifestations of children with severe forms of dengue hemorrhagic fever in South India". *Indian Journal of Pediatrics* 73.10 (2006): 889-895.

11. José G Rigau-Pérez and Miriam K Laufer. "Dengue-related deaths in Puerto Rico, 1992-1996: diagnosis and clinical alarm signals". *Clinical Infectious Diseases* 42.9 (2006): 1241-1246.

12. Ong A., *et al*. "Fatal dengue hemorrhagic fever in adults during a dengue epidemic in Singapore". *International Journal of Infectious Diseases* 11.3 (2007): 263-267.

13. Isarangkura PB., *et al*. "Hemostatic de-rangement in dengue haemorragic fever". *Southeast Asian Journal of Tropical Medicine and Public Health* 18.3 (1987): 331-339.

14. Ampaiwan C., *et al*. "Transfusion requirements inpatients with dengue hemorrhagic fever". *Southeast Asian Journal of Tropical Medicine and Public Health* 31.1 (2000): 10-14.

15. Branicki FJ., *et al*. "Bleeding duode-nal ulcer: a prospective evaluation of risk factors for rebleeding and death". *Annals of Surgery* 211.4 (1990): 411-418.

16. Hsu PI., *et al*. "Bleeding peptic ulcer - risk factors for rebleeding and sequential changes in endoscopic finding". *Gut* 35.6 (1994): 746-749.

17. Lin HJ., *et al*. "Clinical courses and predictors for rebleeding in patients with pepticulcers and nonbleeding visible vessels: a prospective study". *Gut* 35.10 (1994): 1389-1393.

18. Liu JW., *et al*. "Dengue haemorrhagic fever in Taiwan". *Dengue Bulletin* 27 (2003): 19-23.

19. Lee IK., *et al*. "Clinical characteristics, risk factors, and outcomes in adults experiencing dengue hemorrhagic fever complicated with acute renal failure". *American Journal of Tropical Medicine and Hygiene* 80.4 (2009): 651-655.

20. Natth Bhamarapravati N., *et al.* "Pathology of Thai haemorrhagic fever: an autopsy study". *Bull World Health Organization* 25 (1966): 47-48.

Volume 1 Issue 6 January 2017