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Case reports: Two atypical cases of severe dengue fever

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CASE REPORTS

CASE 1

A 35-year-old man presented with a 5-day history of intermittent fever and occasional vomiting and diarrhea. There was no abdominal pain. Oral intake was reduced along with appetite. There was no giddiness or orthostatic dizziness and urine output was good (patient passed urine more than five times in the 24 hours prior to admission). Blood pressure of 120/70 mmHg (lying-standing BP not performed), pulse rate of 90 beats per minute (regular in rhythm), a temperature of 36.7°C and a respiratory rate of 16 breaths per minutes with unremarkable abdominal and respiratory system findings. The patient had no skin rash or flushing but had presence of mild retroorbital pain. Tourniquet test to look for petechiae was not performed. Perfusion was good and hydration status was fair. His last paracetamol intake was 24 hours prior to presentation.

An urgent full blood count (FBC) was collected and showed a hemoglobin reading of 14.2 g/L, hematocrit of 54%, a platelet count of 35 x 10^{10} cells/L and white blood cell count of 2.7 x 10^9 cells/L. A clinical diagnosis of Severe Dengue in the defervescence stage was made. He was referred for admission and discharged after 5 days. During the admission, the patient was given intravenous fluids. He was seen at follow-up one week later which saw both platelet and white blood cell count recovering to a normal level of 290 x 10^9 cells/L and 5.7 x 10^9 cells/L, respectively.

CASE 2

A 43-year-old man presented with a history of intermittent fever for one week with vomiting episodes 2-3 times a day. There was no diarrhea. Oral intake was reduced. There was no giddiness and urine output was good (the patient passed urine 6 times in the 24 hours prior to admission).

Physical examinations were unremarkable with a blood pressure of 110/74 mmHg, a regular pulse rate of 80 beats per minute, a temperature of 37°C and respiratory rate of 18 breaths per minutes with unremarkable abdominal and respiratory clinical findings. Peripheral circulatory perfusion was good and hydration status was good. His last paracetamol intake was 72 hours ago.

A full blood count was collected. It showed a hemoglobin of 15.1 g/L, hematocrit of 50%, platelet count of 15 x 10^9 cells/L and white blood cell count of 4.3 x 10^9 cells/L. A clinical diagnosis of severe dengue fever in the defervescence stage was made. The patient was referred for admission and discharged after 3 days. During admission, the patient was hydrated with intravenous fluid which aided his recovery. The patient was seen after one week and his platelet and white blood cell count showed a remarkable recovery to normal levels of 320 x 10^9 cells/L and 5.3 x 10^9 cells/L, respectively.

DISCUSSION

As is commonly known, dengue fever is a common tropical infection caused by the dengue virus with 3 stages; namely the febrile, afebrile (defervescence) and recovery (convalescence) phases. Of these 3 stages, the most critical stage is the afebrile stage which can be deceiving to the unexperienced physician because patients may have massive leaking of fluids and internal bleeding, but look deceivingly well. This can be indicated by haematocrit levels more than 20% of baseline level. Therefore monitoring and normalizing haematocrit and not platelet should be the main therapeutic goal to prevent the severe complication of dengue fever such as massive bleeding and shock.

These two case reports describe adults presenting with the above scenario in which action was taken without delay, absence of which could have had devastating effects for the patients.

The tropical and sub-tropic region houses about one-third of the world's population and dengue fever is endemic in all countries in these regions. This high prevalence results in an unacceptable number of avoidable infections and deaths. An estimated 400 million individuals are reported to develop dengue fever each year [1].

It is believed that global warming and urbanization are contributing to the world-wide increase in prevalence of dengue.

Dengue fever is caused by the dengue virus, which has four strains including DEN-1, DEN-2, DEN-3 and DEN-4 [2]. The occurrence of these strains is unpredictable, varying throughout the year, with one to two strains predominant at certain times, and less prominent at other times of the year [2].

The availability of the dengue vaccine has brought optimism. Tested in clinical trials, vaccination was proven to be effective at preventing severe dengue fever and also successfully reduced admissions to the hospital by 80% [3]. However, cost and actual effectiveness when used in real time has shown mixed results.

However, dengue fever is still a major infection worldwide and should be managed aggressively, with equal emphasis in both prevention and treating active cases. Among the preventive measures that can be carried out include usage of protective clothing to cover the exposed skin especially during peak times when the mosquito is active, the use of protective mosquito repellants and coils, and advising the public to prevent storage of stagnant water especially in flower pots, bath tubs, clogged drains and unkempt empty bottles to prevent Aedes mosquito breeding [4]. The most crucial therapeutic measures are supportive measures includes the institution of fluid therapy and careful monitoring of clinical status and blood parameters especially haematocrit and platelet levels during the critical phase 4], [5], [6]. Blood transfusion with either platelets, whole blood or fresh frozen plasma is generally avoided unless there is presence of overt bleeding or decreasing haematocrit level despite non-improvement of clinical status [5].

Looking at the above two cases, dengue fever can indeed be a difficult and misleading diagnosis. The first case involved markedly abnormal blood count with a high hematocrit of 54% and a low platelet count of 3.5×10^{10} cells/L. The presence of high haematocrit especially more than 20% higher than baseline level should be taken seriously as it indicates capillary leakage. Capillary leakage if not contained early, may lead to multiple organ failure and disseminated intravascular coagulation (DIC), which has a high mortality rate [6]. The second case presented a different clinical picture with similar blood parameters but with a longer duration of fever that could have been expected in a typical dengue infection. Yet both patients were clinically relatively well with normal vital signs and good perfusion state.

Even though physicians are encouraged to treat their patients based mainly on clinical judgement, it is equally important to do a basic full blood count (FBC) not to miss this important diagnosis. Often, the physician can be tricked into believing that this is just another simple case of viral fever, not suspecting that the patient is already suffering from severe dengue fever, presenting in the defervescence stage. This stage is often referred to as the most critical and most life-threatening stage in the natural history of the dengue infection.

Prevention is still an important step to cut down the transmission rates. Simple measures like regular cleaning of the drain and proper disposal of empty bottles and household rubbish, wearing protective clothing and using mosquito repellant will go a long way in preventing cases of this often-silent killer [7]. Hopes are very much raised upon the dengue fever vaccine, which so far has been used in only a handful of countries, despite its approval for use more than one year ago.

CONCLUSION

In conclusion, dengue fever still remains an important threat to the population in affected areas, often infecting people at an endemic level, and leading to life-threatening complications such as multiple organ failure, respiratory distress and severe internal hemorrhage.
In these cases, the diagnoses were made clinically, yet a simple full blood count was used to increase the clinical likelihood of confirming this often-deceiving infection allowing to initiate treatment that can be potentially life-saving.

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