



Original Article

Dengue 2021: Trend and Infection rate in Teaching Hospitals of Rawalpindi

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ABSTRACT

Dengue is a viral infection that is transmitted to human through bite of Aedes mosquito which in turn incorporates dengue virus in human blood. **Objectives:** To determine the trend of dengue cases reporting in Teaching hospitals of Rawalpindi during 2021 and dengue infectivity rate.

Methods: A cross-sectional descriptive study was done in teaching hospitals (Holy Family Hospital, Benazir Bhutto Hospital and District Head Quarters Hospital) affiliated with Rawalpindi Medical University during September and October 2021 to study the trend of dengue cases and infection rate. The data were gathered with permission of Medical Superintendent working in each of the 3 hospitals pertinent to the number of patients visiting Infectious Diseases OPD, patients admitted and verified as dengue positive on lab investigations. Data were analyzed by means of Microsoft Excel 2010. **Results:** About 1509 patients visiting Dengue OPD during September 2021 while 9765 patients visited during October 2021. Dengue infection rate among patients attended and being managed in three public sector tertiary care hospitals was 21.6% and 13.6% during September and October 2021 respectively. **Conclusion:** Dengue infection rate indicates the need to strategize for regional curtailment of this disease.

INTRODUCTION

Dengue is a viral infection that is transmitted to human through bite of Aedes mosquito which in turn incorporates dengue virus in human blood. About 100-400 million dengue cases are reported worldwide [1]. A broad spectrum of clinical manifestations is attributed to dengue that range from subclinical infection to severe mortal complications [2]. Dengue fever is most likely to end up with complete recovery of the patients but dengue hemorrhagic fever (DHF) and dengue shock syndrome (DSS) may come to halt with grave health consequences [3]. Dengue is endemic in Pakistan and tremendous dengue cases were reported during epidemics [4]. After hitting the big towns, dengue virus infection also drastically affected the neighboring proximities [5]. Dengue cases

and associated deaths are known to be more frequent from July to November and particularly among males due to their maximal indulgent in outdoor activities [6]. Sudden surge of dengue infections was noticed in Rawalpindi during 2016. Rawalpindi being located near the Islamabad Capital Territory (ICT) has humid climate that promotes the dengue virus proliferation particularly after rainfall [7]. One of dengue outbreaks afflicted in 2019 which accounted more than 19,000 cases [8]. Of the total 47,120 dengue cases reported in Pakistan during dengue epidemic 2019, about 12,192 dengue cases were catered in three tertiary care hospitals of Rawalpindi Medical University [10]. However, 3,204 dengue cases were registered during 2020 in Pakistan [9]. Confrontation of general public as well as

healthcare personnel with escalating dengue cases amidst COVID-19 pandemic is quite challenging [11]. WHO regional office in Pakistan is fully committed to provide case management guidelines and technical support for capacity building of the staff for health promotion and specific protection in three major provinces of Pakistan that are currently prone to dengue epidemic [12]. The present study is intended to give an overview of recent trend of dengue cases reported in public sector teaching healthcare facilities affiliated with Rawalpindi Medical University. Reviewing the current trend of dengue cases can enable our policy makers to have optimistic and rational approach towards strategic planning for curtailment of this menace.

METHODS

A cross-sectional descriptive study was carried out in 3 teaching hospitals (Holy Family Hospital, Benazir Bhutto Hospital and District Head Quarters Hospital) affiliated with Rawalpindi Medical University during September and October 2021 to determine the trend of dengue cases and infection rate. The data was collected with permission of Medical Superintendent from each of the 3 hospitals regarding the number of patients visiting Infectious Diseases OPD, patients admitted and confirmed as dengue positive on lab investigations. Data was analyzed by using Microsoft Excel 2010.

RESULTS

Patients with dengue related symptoms started visiting Medical / Infectious Diseases OPD in public sector teaching hospitals from 11th September 2021. Depending on the bed strength of all 3 hospitals (HFH, BBH, DHQ), the number of patients presenting in OPD, admitted and confirmed dengue positive by testing is shown below in Table 1.

Parameters	Holy Family Hospital (Hfh)	Benazir Bhutto Hospital (BBH)	District Head Quarters Hospital (DHQ)	Total
Patients registered in Outdoor patient department (OPD)	7846 (69.6%)	2153(19.1%)	1275 (11.3%)	11274
Patients admitted	1733 (67.5%)	576 (22.4%)	259 (10.1%)	2568
Confirmed Patients (Dengue fever)	1039 (62.8%)	410 (24.8%)	205 (12.4%)	1654

Table 1: Patients visiting, admitting and confirming as dengue cases in 3 Teaching Hospitals

There were about 1509 cases who visited dengue OPD of all 3 teaching hospitals during September 2021 with admission of first case on 11th September, while about 9765 patients visited OPD from 1st- 18th October 2021 as depicted below in Figure 1.

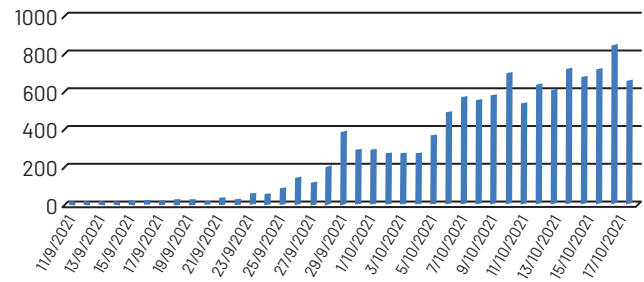


Figure 1: Date-wise frequency of cases visiting dengue OPD

Of the total 11274 patients presenting in Infectious Diseases OPD from 11th September – 18th October 2021 with dengue associated symptoms, only 1653 (13.5%) were verified as dengue cases as illustrated below in Figure 2.

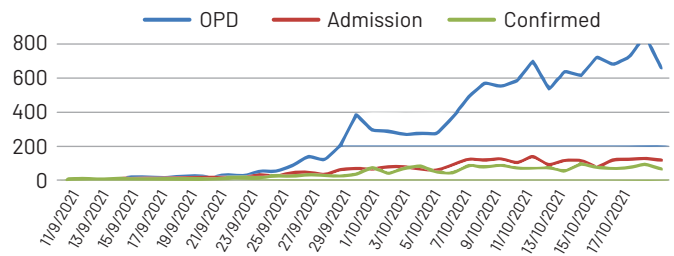


Figure 2: Trend of dengue cases, patients visiting with symptoms and confirmed cases

About 326 cases were determined as confirmed cases during September 2021 while 1328 cases were verified during October 2021. Dengue positivity rate (infected / visiting OPD × 100) in public sector teaching hospitals of Rawalpindi was determined to be 21.6% and 13.6% during September and October 2021 respectively.

DISCUSSION

Dengue is quite devastating public health issue frequently encountered in urban slums as well as semi-urban zones of globally endemic regions. Ranawaka et al., found that greater than 70% of dengue infections detected in Asian countries, case fatality rate is anticipated to be 20% without appropriate case management [13]. In our study, about 326 confirmed dengue cases were reported from 11th -30th September 2021 with highest frequency that is 74 cases / day were admitted in RMU affiliated teaching hospitals on 30th September 2021. In major cities of Punjab particularly in Lahore, dengue cases were drastically escalated in last week of September 2021. Periodic surveillance of at risk places like tyre shops and graveyards was carried out by the concerned officials for fumigation and drainage of stagnant water in order to eliminate the mosquito breeding places. These measures in addition to awareness campaign are of paramount significance in order to prevent the repetition of dengue epidemic 2019 scenario [14]. In comparison with our research, Indian statistics pertinent to dengue showed crowning of cases in

September 2021 that was determined to be about 217. However, dengue cases in September 2020 amidst peak of COVID pandemic were approximately 188 revealing fewer predilections for dengue last year [15]. On the other hand, drastic reduction in dengue cases in Malaysia was observed from 63,988 during Jan–Aug 2021 to 16,565 during the same tenure in 2021. As there was no vaccine against dengue, so strict adherence to preventive strategies was the only option to mitigate the chances of dengue epidemic at this crucial moment when our frontline warriors are already confronted with COVID pandemic associated healthcare challenges [16]. Pan American Heart Organization (PAHO) verified the occurrence of 416,289 dengue cases till 18th September 2021 and approximately 265 dengue related deaths in various states of America. The countries revealing the highest propensity of dengue cases during 2021 are Brazil, Peru, Nicaragua, Colombia and Mexico. Likewise, Pakistan, rise in dengue cases was spotted in other Asian countries including Bangladesh, Cambodia and Laos [17]. The rapid spread of bacterial and viral infections across the world has become possible due to globalization. Already sufficient health resources in our healthcare facilities were spent in investigating and managing the COVID menace since March 2020; it will be impossible for our healthcare professionals to manage the exceeding dengue cases along with COVID havoc in public sector hospitals due to limited budget and staff shortage. Tan et al., found that most of the dengue cases were notified across the globe but still this infection constitutes the submerged portion of disease iceberg due to under-reporting or misdiagnosis of most of the cases [18]. In view of emerging and re-emerging infections, World Health Organization is seriously committed to pledge with other countries for adequate preparedness in order to fight against Public Health Emergencies of International Concern (PHEIC). Even one of the ten issues declared by WHO to track in 2021 was to curtail the spread of communicable diseases like polio, TB, malaria etc. by vaccinating the missed population during 2020 [19]. COVID-19 cases throughout Punjab on 21st October were reported to be 364 showing adequate curbing of this havoc that has become possible by strict observation of SOPs and mass vaccination drive [20]. Umar et al., found that despite the increased susceptibility to infectious disease outbreaks, reduction in COVID cases in Pakistan can be attributed to provision of testing amenities, health awareness, closure of educational institutes and periodic lockdown imposition [21]. Unfortunately, our healthcare workers are managing COVID-19 and dengue cases simultaneously [4]. The co-infection with COVID and dengue had also been reported among residents of India, Brazil and France [22, 23]. Resources like healthcare

workforce, infrastructure and testing kits are required for both of these infectious diseases for their apt diagnosis, timely management and prevention of grave health consequences.

CONCLUSION

Dengue infection rate indicates the need to strategize for regional curtailment of this disease. Dengue infection rate in Rawalpindi district can substantially be mitigated by opting administrative and healthcare impositions.

Conflicts of Interest

The authors declare no conflict of interest

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