Study on Prevalence of Communicable Diseases Covered under Integrated Disease Surveillance Project (IDSP) among Inpatients in A Pediatric and Adolescent Ward of A Tertiary Care Hospital

C Karthik[1], Poornima. ARC[2], Niranj Rathan[3], D. Jaiganesh[4]

[1]Assistant Professor, Institute of Community Medicine, Madras Medical College, Chennai, India
[2]Assistant Professor, Department of Dermatology, Madras Medical College, Chennai, India
[3]Assistant Professor, Department of Transfusion Medicine, Sri Ramachandra Institute of Higher Education and Research, Chennai, India
[4]Associate Professor, Department of Community Medicine, Institute of Child Health and Hospital for Children, Egmore, Chennai, India

Abstract

Background: Communicable diseases are illness due to a specific infectious agent or its toxic products capable of being directly or indirectly transmitted from man to man, animal to animal, or from the environment to man or animal. Surveillance is considered to be the backbone for disease prevention and control. It includes data collection, compilation, analysis, interpretation and distribution for action. IDSP is a decentralized state based surveillance programme, wherein weekly disease surveillance data on epidemic prone disease are being collected from several reporting units. This study was conducted to know the clinico-epidemiology and prevalence of the communicable diseases covered under IDSP.

Objectives: To estimate the clinico-epidemiology and prevalence of the communicable diseases covered under IDSP among the pediatric inpatients of Vani Vilas Hospital (VVH), Bangalore Medical College and Research Institute (BMCRI), Bangalore, Karnataka.

Methodology: This is a record based institution study. Data collection will be started after obtaining clearance from the college Ethics committee. Data from all the records satisfying the inclusion criteria will be collected on a weekly basis (Monday to Sunday) and analyzed for their completeness and thoroughness in recording and notification. Data will be analyzed using SPSS software and will be presented in the form of tables and figures.

Results: A total of 2716 patients were admitted over a period of 12 months from January 2016 to December 2016. Of these, 963 (35.45%) cases were due to the communicable diseases covered under IDSP. The commonly reported diseases are Pneumonia 293 (30.4%), Dengue 220 (22.9%) and Acute Diarrheal Disease 144 (15.8%). Data was analyzed by using Statistical Package for Social Sciences (SPSS) software version 20.0.

Keywords: Communicable Diseases, IDSP, Report, Surveillance, Under Five.

Introduction

Communicable diseases are illness due to a specific infectious agent or its toxic products capable of being directly or indirectly transmitted from man to man, animal to animal, or from the environment to man or animal. [1] They constitute a significant disease burden and a major cause of morbidity and mortality and long-term mental and physical disabilities. Their transformation into epidemics will hamper routine health services and drain the resources. The multiple predisposing factors like poor sanitation, low socioeconomic status, illiteracy, inadequate drinking water facilities and adverse environmental conditions determine the vulnerability of an area to outbreaks. [2]

Surveillance as per definition is the continuous scrutiny of the factors that determine the occurrence and distribution of disease and other conditions of ill health. [1] Under the project weekly disease surveillance data on epidemic prone disease are being collected from reporting units such as sub centers, primary health centers, community health centers, hospitals including government and private sector hospitals and medical colleges. The data are being collected on 'S' syndromic; 'P' probable; and 'L' laboratory formats using standard case definitions. [3,4] More than ninety percent districts report such weekly data are sent through e-mail/portal (www.idsp.nic.in). The weekly data are analyzed by District Surveillance Units (DSU) / State Surveillance Units (SSU) for disease trends. During rising trend of illnesses, it is investigated by the Rapid Response Team (RRT) to diagnose and control the outbreak. [5] The pre-requisite of the effective surveillance are standard case definition, ensure regularity of reports and the action on reports. The diseases to be included in the surveillance programme will be based on the following criteria burden of

disease in the community, availability of public health response and special considerations and international commitments.[6] The reporting units converge data from both the private and public sectors in the urban and rural setups. Of these, the medical colleges which are basically teaching hospitals, are sentinel centers under the integrated disease surveillance project, reporting important data to monitor the progress of the ongoing diseases and help the government to allocate health resources more efficiently depend on the health problem. [7,8]

To understand the difficulties and challenges of an IDSP center, an evaluation is needed. This helps in improving the surveillance surveillance by proper interventions and corrections.

The objective of the study was to know the a clinico-epidemiology and burden of the communicable diseases covered under IDSP among the paediatric inpatients of Vani Vilas Hospital (VVH), Bangalore Medical College and Research Institute (BMCRI), Bangalore, Karnataka.

Materials and Methods

A record based institutional study was done on the pediatric patients with disease conditions covered under IDSP treated in the In Patient Department (IPD) of the Department of Paediatrics, VVH, BMCRI, Bangalore from January 2016 to December 2016. The institutional ethical committee is given the ethical approval to conduct the study.

The Inclusion criteria is all the In Patients admitted and treated for the disease conditions covered under the IDSP in the Department of Paediatrics, VVH, BMCRI, Bangalore. Data from all the records satisfying the inclusion criteria will be collected on a weekly basis (Monday to

Sunday) and analyzed for their completeness and thoroughness in recording and notification. Data was collected on 963 subjects who come under IDSP. The complete clinico epidemiological data and the prevalence of the diseases covered under IDSP was collected during the study. The information obtained was converted into a computer based spreadsheet using Microsoft Excel software version 2010 and analyzed by using Statistical Package for Social Sciences (SPSS) software version 20.0. Descriptive statistics was used as necessary and all qualitative variables were presented as frequency and percentages.

Results

A total of 2716 patients were admitted in the paediatric wards of VVH from January 2016 to December 2016. Out of 2716 patients, 963 (35.45%) cases were due to the communicable diseases covered under IDSP. The average of 3 out of every 8 cases being admitted per day, reveals that nearly 38% of the daily admissions are due to communicable diseases.

Among the 963 study subjects, 535 (55.6%) are males and 428 (44.4) are females. Figure 1 shows the age distribution of cases among the study subjects. The total deaths recorded are 139 which are due to various causes like congenital heart diseases, prematurity, malnutrition, food poisoning, injuries, etc. The deaths due the communicable diseases were 78 (56.12%) in number accounting to more than half of the total mortalities. Table 2 shows the age distribution of mortality.

Table 1: Total number of Communicable diseases covered under IDSP

S.NO	Diseases	Number (963)	Percentage
1.	Pnuemonia	293	30.4
2.	Dengue	220	22.9
3.	Acute diarrheal diseases	144	15.0
4.	Lower respiratory tract infection	75	7.8
5.	Puo	49	5.1
6.	Tuberculosis	30	3.1
7.	Acute respiratory tract infection	21	2.2
8.	Meningitis	6	0.6
9.	Sepsis	27	2.8
10.	Measles	18	1.9
11.	Ricketssia	11	1.1
12.	Malaria	11	1.1
13.	Enteric fever	24	2.5
14.	Hepatitis	8	0.8
15.	Diphtheria	4	0.4
16.	Acute flaccid paralysis	4	0.4
17.	Chicken pox	1	0.1
18.	Cholera	2	0.2
19.	Bacillary dysentry	1	0.1
20.	Chikungunya	2	0.2
	Total	963	100

Table 2: Age distribution of mortality

Age group	Male (34) Number (%)	Female Number (%)	Total (%)
0 to 1	20 (25.64)	32 (41.03)	52 (66.7)
2 to 5	8 (10.26)	4 (5.12)	12 (15.4)
6 to 10	5 (6.4)	5 (6.4)	10 (12.8)
11 to 15	0 (0.0)	3 (3.8)	3 (3.8)
16 to 18	1 (1.3)	0 (0.0)	1 (1.3)
Total	34 (43.6)	44 (56.4)	78 (100)
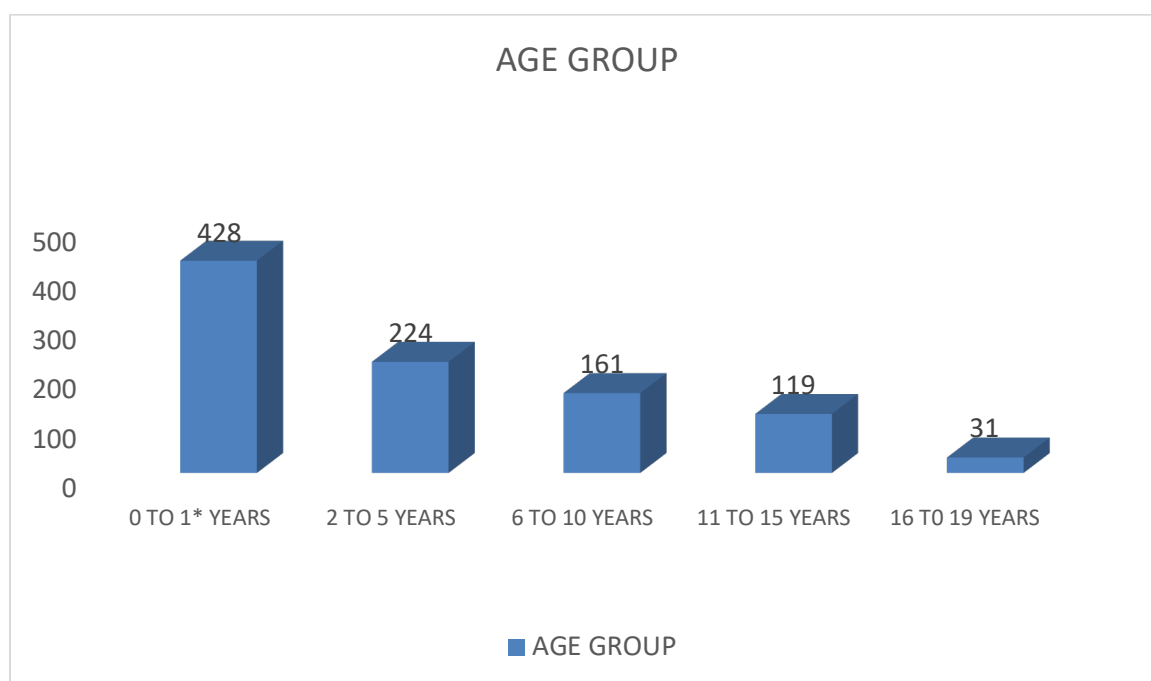
Figure 1: Age distribution of cases

Discussion

Of the total number of death cases, the 0-1 age group (Infants) contributed to most of the deaths 52 (66.7%) and the under 5's put together contributed to 78 cases which accounts to nearly 82% of the total mortality. 12 deaths were found in the age group 2-5 years, 10 deaths among 6-10, 3 among 11-15 and only one case between the age group of 16-19.

A gender wise breakup of the mortality cases among the cases shows 34 (43.6%) males and 44 (56.4%) females. Most of the deaths in this age group were due to sepsis (19), followed by pneumonia (13), dengue (9) and acute diarrheal diseases (6) and meningitis (5). The rest of the cases like malaria, tuberculosis, PUO, rickettsia, enteric fever, LRTI and measles contributed to about 1 to 2 cases each.

The reports submitted by the institution to the DSU were checked for its timeliness and completeness. It has been proved that 100% of the forms that is, 52 forms one for each week in the year 2014 have been submitted on time with all the variables enlisted in the P form, every Monday of the corresponding

week. Although the data was complete in terms of the surveillance aspect, notable discrepancy was found in the completeness of case reporting.

India needs a special mention in the context of childhood pneumonia. Morbidity rates tend to vary between 0.2 to 0.5 episodes per child- year and approximately 30 per cent of communicable diseases are due to childhood pneumonia. This study also shows the prevalence of pneumonia was 30.4%. [9,10]

The state-level estimates were collated to obtain the eight causes of childhood deaths at national level for 2000-2012, including pneumonia, diarrhea, malaria, meningitis, injuries, dengue, etc. [11] This study also supports these findings for the causes for childhood mortality

220 (22.9%) cases were diagnosed to have dengue fever but 324 were reported showing an excess of 103 cases. The statewide outbreak of dengue during those months compelled to rule out dengue as a possible outcome among fever cases so empirically all the cases that presented as febrile thrombocytopenia were reported as dengue in the P form. Initially for a fever case, on admission, only complete haemogram is done in the laboratory of VVH to come to a diagnosis of dengue. The specific tests like NS1 antigen and Anti IgM antibody are done free of cost upon referral at NIV, Bangalore. It is only on discharge that a confirmative diagnosis of dengue can be made which is the actual representative population of the disease. Hence, the discrepancy in the data. [12]

Average estimated incidence of diarrhea in children aged 0-6 years was 1.71 and 1.09 episodes/person/year in rural and urban areas. [13] According to National Family Health Survey-3 (NFHS-3) report, 9% of all under-five children were reported to be suffering from diarrhea in last 2 weeks. ADD is attributable to unsafe water supply, sanitation and hygiene in developing countries. Of the 963 cases 144 (15.0%) are acute diarrheal diseases which were admitted and treated whereas 192 cases were reported in the P from. The confirmatory test will be done during the course of the hospital. [14]

Conclusion

Data entry into the P form should be done by a doctor as it can avoid misinterpretation of medical terminologies. The five state priority diseases should be enlisted as options in the priority category as not everyone is acquainted with them. Laboratory should be strengthened and the investigations should be done at the institute level and referral of cases to outside sources should be minimized. Doctors should be sensitized about the programme requirements and updated at regular intervals.

Acknowledgment

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