SEASONAL VARIATION IN GASTROENTERITIS & ITS PUBLIC HEALTH IMPLICATION

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ABSTRACT

Intoduction: Diarrheal diseases hold profound messages as well as opportunities that range from public health to basic science. Apart from poverty, diarrhea morbidity and mortality is associated with population overgrowth. Seasonal cycles of infectious diseases have been variously attributed to changes in atmospheric conditions, the prevalence or virulence of the pathogen, or the behavior of the host organism. An understanding of the seasonal variation of enteric pathogens would contribute greatly in focusing healthcare initiatives in a climate of limited resources to a cost-effective reduction in disease morbidity and mortality which is why it has attracted considerable attention from healthcare researchers around the world with several studies having been conducted in both the developing and the developed countries.

Material & methods: It was a retrospective analysis of all admission during 2007-2008 to the medical unit Hyat Abad Medical Complex Peshawar. The diagnosis was coded & was entered to a program on Microsoft excel for all the admission during the said period.

Results: There were 2420 admissions during this period & the cases of gastroenteritis were155. There were two peaks in the admission trend i.e. May & August.

Conclusion: Diarrhea is a common public problem in our community particularly in summer i.e. in August when monsoon arrives& accounts for a significant number of hospital bed occupied. A larger community based multicentre study is needed to access it true incidence & prevalence in our community.

Key words: Diarrhea, Seasonal variations, Gastroenteritis

INTRODUCTION

Diarrhea is defined as stool weight in excess of 200 grams per day[1]. However, this definition is of little clinical value, since collecting and weighing stools is neither practical nor required except in a clinical research setting. A good working definition is three or more loose or watery stools per day or a definite decrease in consistency and increase in frequency based upon an individual baseline[2]. It may be acute (lasting less than a week), persistent (lasting up to two weeks) or chronic (lasting up to 1 or more than a month)[2].

The incidence & seasonal variation varies in different parts of the world. The Food borne Disease Active Surveillance Network (Food Net) conducted a population-based telephone survey of 12,075 persons in the United States from 1998 to 1999 to assess diarrheal illness[3]. Six percent reported an acute diarrheal illness at some point during the four weeks preceding the interview (annualized rate, 0.72 episodes per person-year). Rates of illness were highest among children younger than five years (1.1 episodes per person-year) and were lowest in persons aged e" 65 years (0.32 episodes per person-year). A study in 2000 that estimated the economic burden of both infectious and noninfectious gastrointestinal and liver gastroenteritis (135 million cases per year) and food borne illness (76 million cases per year)[4]. A study from England that included 9776 adults reported an incidence of infectious diarrhea of 19.4, 3.3, and 0.15 cases per 100 person years in a community cohort, those presenting to general practitioners, and cases reaching the national surveillance system, respectively[5]. A retrospective, cross-sectional telephone survey of 3500 Canadian residents from February 2001 to February 2002 reported an incidence of acute gastrointestinal illness of 1.3 episodes per person-year[6]. The incidence of gastroenteritis was 45 per 100 person years in a prospective cohort study in the Netherlands involving 2206 people from the general population[7].

We analyzed cases of gastroenteritis admitted to medical unit at Hyat Abad Medical Complex Peshawar during 2007-2008.

MATERIAL & METHODS

It was a retrospective analysis of all admission during 2007-2008 to the medical unit Hyat Abad Medical Complex Peshawar. The diagnosis was coded & was entered to a program on Microsoft excel for all the admission during the said period.

RESULTS

There were 2420 admissions during this period and the district/agency wise distribution is as shown in Table 1. There were two peaks in the admission trend i.e. May & August Figure 1.

The admission trend of diarrhea is as shown in Figure 2. There were 155 cases of diarrhea, 46% of all GIT admission as shown in Figure 4.

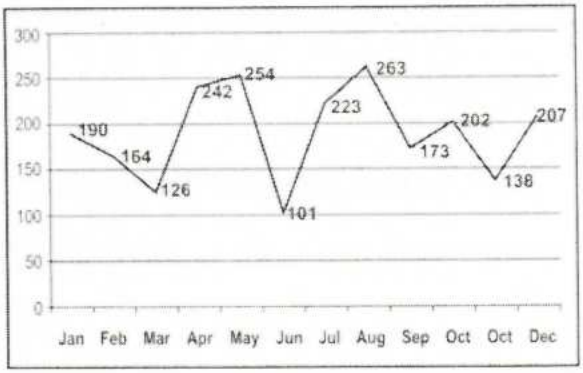
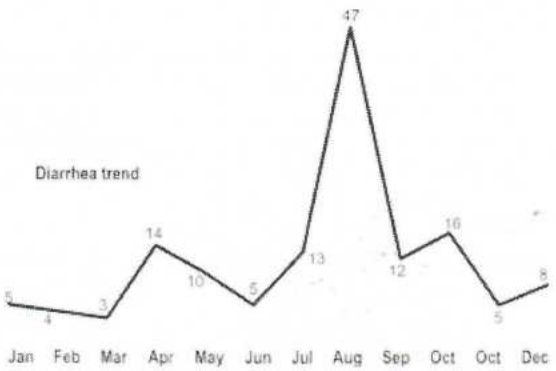


Figure 1. Admission pattern for the year 200-2008 to medical Unit KTH.

Peshawar	1414
KhyberAg/FR peshawar	217
NWAgency & FRBanu	103
Bannu	86
Charsadda	81
Dir	65
Mardan	64
Nowshera	45
Laki	43
Kohat	41
Swat	38
Sawabi	38
SWAgency/FR Tank/FR DIKhan	33
Karak	32
KurramAg	31
MomandAg	23
Hangu	22
BajaorAg	13
Chitral	11
Orakzai Agency/FR kohat	7
Dl khan	4
Haripur	4
Bunair	2
Abotabad	2
Shangla	0
Tank	0
Mansehra	0

Figure 2. Seasonal variation in gastro enteritis.



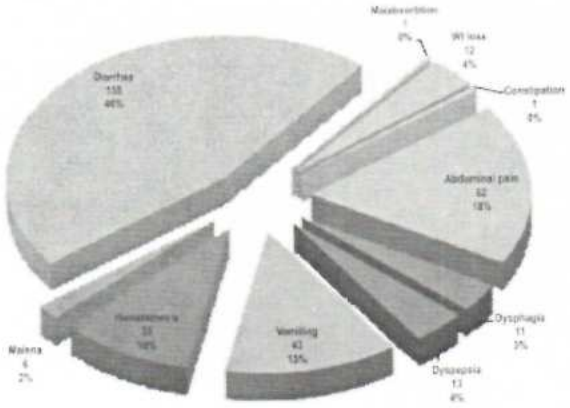


Figure 4. Distribution of GI problems.

DISCUSSION

The incidence & prevalence of documented infectious diarrhea is grossly underestimated, since many patients do not seek medical attention and testing is not always done when patients do contact their physician[8]. In two studies, only 22 percent of patients with gastroenteritis consulted a physician[9], and only 5 percent of patients had submitted a stool sample[10]. A report from the CDC estimated that known pathogens account for approximately 14 of 76 million (18 percent) of annual cases of food borne illness[11]. Diarrhea results in 300 to 400 deaths per year in children in the United States, approximately 200,000 hospitalizations, 1.5 million outpatient visits, and more than one billion dollars in direct medical costs[12]. However, other more subtle measures of cost to society from acute diarrheal illness in the United States (such as missed days from work) have not been well-studied. To perform such estimates, one would also need to factor in chronic illnesses (e.g., some cases of ankylosing spondylitis, thyroid, renal, neuromuscular disease, and irritable bowel syndrome) that may result from the acute episode[13]. Most cases of acute infectious gastroenteritis are viral as indicated by the observation that bacterial stool cultures in patients with acute diarrhea have been positive in only 1.5 to 5.6 percent of cases in most studies[18-23]. Support for viral infection causing most cases comes from a pilot study of food borne outbreaks in which stool collection kits were delivered to and from the patients' homes[24]. A pathogen was identified in 71 percent of patients, three-quarters of which were non virus.

In a study conducted at Agha Khan University hospital Karachi, detection rate of bacterial pathogen was high in summer as compared to other seasons and the common organisms were Vibrio cholera O1 Ogawa (33.8%), Campylobacter jejuni (17.3%), Enteropathogenic E. coli (9.9%), Salmonella paratyphi b (6.6%), and Shigella flexneri (6.2%)[25].

Our study was a hospital based study & indicates that it starts from May & peaks during August when monsoon arrives. The public health implications can be enormous.

1. Exploiting print & electronic media regarding public awareness in the pre summer season involving religious leaders in the religious gatherings such Friday's prayer to aware the public regarding the forthcoming epidemic, risk factors, hands washing, boiling water etc. Furthermore this opportunity can also be used to educate the public regarding seeking help early, use of ORS & to continue feeding the babies particularly as it is a secretary disease rather than an absorption problem.
2. Refreshing courses for the doctors, nurses, paramedics regarding, identification of the cases, assessment of the severity, complications & the management strategy.
3. Provisions of enough diagnostic & therapeutic tools in the months proceeding summer to prepare the whole machinery for the possible breakout.
4. To make case to create a pressure group to put pressure on the government officials to invest more in public health (provision of safe drinking water, proper disposal of sewage etc).

CONCLUSION

Diarrhea is a common public problem in our community particularly in summer i.e. in August when monsoon arrives& accounts for a significant number of hospital bed occupied. A larger community based multicentre study is needed to access it true incidence & prevalence in our community.

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