A Short Review on the Disease Pattern In The Paediatric Ward of Bheri Zonal Hospital Observed For Five Years Period.

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Introduction:

Each zonal hospital has a paediatric ward, where as possible, some paediatric beds are allocated. The Bheri zonal hospital, on which this study was undertaken, from the period of its establishment is working as a regional & at the same time referral hospital for five zones: Mahakali, Seti, Karnali, Bheri & Rapti. In particular, it gives services to the people of Banke, a terai district, which borders with India & where it is located. The paediatric ward has six beds & the paediatric OPD is running from the very beginning of its establishment.

There are some studies about disease pattern in Kanti Children's Hospital. We took to study the disease pattern of a paediatric ward of a general (in our case : zonal) hospital taking into consideration the different group of contingency than that of specialised paediatric hospital. Apart from the geographical position of the locality, cultural & social structure and status of living may strongly influence on the disease pattern.

So, keeping in mind the rarity of past study on this subject, it was thought worthwhile to study & present the pattern and profile of the paediatric diseases, and the frequency of paediatric contingent in a general hospital.

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Method & Materials

The clinical materials for our study comprised of 1025 patients, who were admitted to the paediatric ward of Bheri zonal Hospital during a period of five years 2036 Shrawan to 2041 Ashadh, (Bikram Sambat.) We studied all the case reports through admission-forms & hospital data. The diagnosis taken for our study was the final diagnosis, written at the time of discharge.

Table I
Paediatric Contingent In the OPD of Bheri Zonal Hospital.

Year	No. of total outpatient	Mo. of total paed. outpatients.	%	Remarks
036/037	36317	*	*	Records not available so not included in total
037/038	35043	*	*	
038/039	28602	9505	33.22%	
039/040	27907	9186	32.2%	
040/041	36444	10006	27.5%	
Total	92,953(164,313)	28697	30.98%	

From this table it is obvious that the paediatric contingent consists about 31 % of total outpatient.

Table II
MALE : Female Ratio of the Paediatric Contingent (OPD)

Year	Total paed. contingent	male	%	female	%	Remarks
036/037	*	*	*	*	}	Records not available.
037/038	*	*	*	*		
038/039	9505	5344	56.22	4161	43.77	
039/040	9186	5278	57.45	3908	42.54	
040/041	10006	5826	58.22	4180	41.77	
Total	28697	16448	57.31	12249	42.63	

From this table we see that the male paed. contingent is seen in (i. e. are frequently taken) to the hospital than the female contingent majority.

Table III

Age Distribution of the Paediatric OPD Contingent.

Due to non - availability of the records we could not study age distribution of the OPD-contingent.

Table IV

Frequency of Admission From the Paediatric OPD

Year	Total No. of paed. OPD contingent	total paed, admission	%	Remarks
036/37	*	125	?	Records not available
037/38	*	136	?	
038/39	9505	188	1.98%	
039/40	9186	257	2.80%	
040/41	10006	319	3.18%	
Total	28697	764 (1025)	2.66%	

From the table IV we see that about 2.7% of total paed. OPD-contingent needs admission, or frankly speaking only 2.7% of total paed. OPD is admitted to the ward. (We are excluding the fact of admission through casualty dept.)

Table V

Frequency & Ratio of Paediatric Admission to Total Hospital Admission

Year	Total hospital admission	Total Paed. admission	% of paed. admission	Ratio of paed. adm. to total	hosp admission Remarks:
036/37	2496	125	5%	1:20	Hospital admission
037/38	2650	136	5.13%	1:20	to bed ratio=Const
038/39	2425	188	7.75%	1:13	1:8
039/40	2717	257	9.45%	1:11	Paed. bed to total
040/41	2735	319	11.67%	1:8.6	hosp. beds=1:8
Total:	13023	1025	7.877%	1:12.7	

From this table it is obvious that the frequency of paed admission is increasing & the

ratio of paed. admission to the total hospital admission is not unsatisfactory. That is to say, the paed. ward is generally in rush.

Table VI

Ratio of Total Hospital Admission to Total Beds & Paediatric Admission to Paed Beds

Year	Total Hosp. Admission	A Total beds	Ratio	Total paed Admission	Paed. Beds	Ratio	Equilizer
036/37	2496	{ 50 }	1:50	125	{ 6 }	1:21	<(53.9)
037/38	2650		1:53	136		1:23	<(57)
038/39	3425		1:48.5	188		1:31	<(51)
039/40	2717		1:54	257		1:43	<(56)
040/41	2735		1:55	319		1:53	<(53)

The above table shows us that the paed. admission and occupying of bed is continuously increasing and as a whole correlates to the total hospital admission.

Table VII

Male-Female Ratio of Paediatric Admission.

Year	Total paed adm.	Male	%	Female	%	F:M Ratio	Remarks
036/37	125	70	56%	55	44%	1:1.27	
037/38	136	85	62.5%	51	37.5%	1:1.67	
038/39	188	108	57.4%	80	42.6%	1:1.35	
039/40	257	167	65%	90	35%	1:1.85	
040/41	319	196	61.4%	123	28.6%	1:1.59	
Total	1023	626	61%	399	39%	1:1.57	

From this table we see, as in the case of OPD-contingent, the male dominance is obvious for admission too. It is even higher than the OPD., which gives us some logic to think seriously: either the male child is:

- (1) attended and cared more frequently by the parents than the female child, &/or
- (2) more prone to diseases (infections) and tend to get worsened, so compel the parents to seek the medical help & are admitted frequently. Whatever the cause, the male predominance is obvious.

Table VIII

Average Hospital Days Spent by the Paediatric Patients in the Bed.

Year	Total paed. adm	Total hospital days	Average hospital days spent by a patient
036/37	125	538	4.30
037/38	136	700	5.14
038/39	188	1158	6.15
039/40	257	1453	5.65
040/41	319	1860	5.83
Total	1025	5709	5.57

From this table we see that in average a paed. patient spends about 6 (six) days in the hospital, which in turn may affect the admission & morbidity rate. And at the same time, the diseases may influence on the mortality rate.

Table IX

Mortality Rate of the Paediatric Ward (Admitted Cases)

Year	Total No. of patients	Cured & Recovered cases	%	expired cases	%	Absconded & LAMA or Refd	%
036/37	125	89	71.2	26	20.8	10	8%
037/38	136	89	65.4%	33	24.3%	14	10.3%
038/39	188	115	61.2%	52	28%	21	10.8%
039/40	257	172	66.9%	53	20.6%	32	12.5%
040/41	319	271	66.1%	59	19%	49	15.4%
Total	1025	676	65.95%	223	21.75%	126	12.3%

From this table we see that around 22% of the total cases terminate into death. The cure rate for the admitted cases is 66%, which is in our view is quite satisfactory for the hospitals, which is not having laboratory facilities. About 12% cases are either referred to the specialised hospitals with more facilities for diagnosis & treatment or leave the hospital against medical advice (LAMA). or just abscond (leave the hospital without information.) The high mortality rate may be described in various ways, but to us, the main explanation

is the late admission to the hospital, when the nature of the disease is fatal or extremely severe or at the last stage, when the local healers suggest the pt. party to look for the help from hospital. But it is already too late !

Table X
Incidence of Age -Group In Paediatric Ward.

Year	Total paed.	Age group in Years.			
	admission	0-1 yr.	1-4 yrs.	5-14 yrs.	
035/37	125	60	34	31	
037/38	136	50	45	41	
038/39	188	86	49	53	
039/40	257	113	67	77	
040/41	319	147	77	95	
Total	1025	456	272	297	
%	100%	44.5%	26.5%	29%	

The above table shows us that the main contingent by age group admitted to the hospital is infants, maximum for the paediatric group falls on 0-1yr. age group, which consists in our study of 44.5%, 29% by school-age children & 26.5% by pre-school children.

Table XI
Disease Pattern According to the System Involved.
Systems involved

Year	Digestive System	Respiratory System	CVS	CNS	UT	Haemop syst	PUO	Others	Total	Remarks
036/37	28	38	1	41	1	3	7	6	125	
037/38	26	43	1	41	3	2	13	7	136	
038/39	28	62	1	64	4	4	15	10	188	
039/40	59	74	2	59	7	12	21	24	257	
040/41	77	94	2	85	5	11	14	31	319	
Total	218	311	7	289	20	32	70	78	1025	
%	11.2%	30.34%	0.68%	28.25%	1.95%	3.12%	6.83%	7.6%	100%	
Place by frequency:	III	I	VIII	II	VII	VI	V	IV		

From this table No. XI it is obvious that the morbidity in paediatric group is different than that of adults. The first place in the morbidity being occupied by respiratory tract infections, consisting about 30.34%, then in the second place comes central nervous system disorders : 28.25% & in the third place comes digestive system disorders, 21.2%. The fourth place in our study is occupied by the column "Others", so it is not considered accurate as it includes various, not mentioned in the table systems, and same logic must be applied to the column 'PUO', occupying the fifth place according to frequency. Haemopoietic System disorders are placed on the sixth place with 3.12%, Urinary tract Infections occupy 7th. place and then comes Cardio-Vascular System disorders in 8th. place with the frequency consisting of 0.68% of the total.

Discussion:

We have studied the disease - pattern by the system involved, because it is easier to put the diseases in either of the systems in a text-book manner. But at times it is very hard to isolate them according to the nature of the disease, and it may give some wrong information about the pattern. So we took to concern only with the primary disease with its manifestation on the organ or system, & where it is possible to isolate them from one another, not merely consequences. For example anaemia in our country usually is a consequence of dietary deficiency of iron, which in turn, may be secondary to paediatric infection. So, we have put the anemias in two different places : If there is stool positive worm infestation it is put under the column "Digestive System" & if no cause is revealed, it is put under the "Haemopoietic System."

In our series of study, the first place (30.34%) in the morbidity pattern is occupied by Respiratory System Disorders. In Dr. Shrestha 'Y.B.'s series 71 (1) they consisted of 48%, where as in Dr. Rajbhandari P.L. & Dr. Singh D.L. '(5)' series (Top Twelve in paediatrics in Nepal-971), they constituted 41.31% of the total morbidity in the outdoor. (They include in this URTI, LRTI, Pertussis & Tuberculosis chest.) In our study, it is relatively low.

This difference may be explained by various factors, such as geographical situations, as Banke is situated in the Terai region of Nepal, Temperature & humidity are different than Kathmandu valley & hill regions. Besides this, Dr. Shrestha's series was conducted during winter season & the duration of study is short: only six months., so the incidence may look high.

her. Apart from this our series is conducted for only the admitted cases, which means severely ill patients & may not tally with that of Dr. Rajbhandari & Dr. Singh (5)'s series on OPD-data.

In Dr. Shreshtha's study, the CNS (neurological) disorders consist of 8.43% cases, but in our study, it is placed on the second position with the frequency 28.25%. In Dr. Shreshtha & Dr. Pradhan, D. P.,s (2) study of the CNS-disorders for a period of five years, it accounted 4.45%, which is much more less than ours. In Dr. Rajbhandari & Dr. Singh's series only meningitis & convulsions are noted & constitute only 0.31%, occupying twelfth place.

The explanation for the differences in the studies may be as following:

1. The geographical situation of the Banke District, the way of living of the local people, especially Tharu population, & their customs. In our study the main disease affecting the CNS, Tetanus, which is prevalent in this region, especially Tetanus neonatorum. Beside this, other contributing factors are meningitis & encephalitis, which were prevalent in this region in the years 038-040.

2. The short duration (6-months') of Dr. Shrestha's study, it was during winter season, when the study was done & we know that seasonal variations are & must be considered, for the infectious diseases affecting the CNS. So, the disease pattern differs in the different studies.

The digestive system disorders in our study consists of 21.25% cases and occupies III place in the morbidity series. In Dr. Shrestha's study, it is 25.3% and Dr. Rajbhandari & Dr. Singh's study, it is 36.15%. They put it under the column "Diarrhoea" only. The variation in these studies may be explained by the fact that Diarrhoea & its consequence, DEHYDRATION is the first & foremost morbidity & mortality factor in children. [we accept the fact that the main morbidity factor that turns the parents to attend the hospital or a doctor is change in digestive system function, especially, diarrhoea.] But in our study only admitted cases are taken into consideration, & malnutrition, jaundice & worm infestation are the main contributors. Dehydration, the frequent morbid factor in paediatric patients, is mainly treated in the casualty dept. and after rehydration therapy they are discharged. So exact figures are

hard to find out & may be inaccurate. So, we agree with Dr. Rajbhandari & Dr. Singh, in their article "Top Twelve in Paediatrics in Nepal" that the first & top morbidity factor in the general OPD is Diarrhoea (36.15%), but for the indoor patients, our study is more close to Dr. Shrestha's study. The parasitic infestation are generally not admitted, are treated in the OPD, unless there is consequences due to this. So it occupies third place.

Now for the incidence of urinary tract infection, including nephritis, nephrotic syndrome, in Dr. Shrestha's (1) study it accounts 4.23%, in Dr. Rajbhandari & Dr. Singh's (5) it is 1.93%. Our study correlates to that of Dr. Rajbhandari & Dr. Singh's accounting 1.95%, but it is less than Dr. Pradhan D.P.'s series (4), which consists of 4.22% of total in-patients in Kanti Children's Hospital for the period of 5 yrs. In our view this difference is due to the fact that usually Urinary Tract Infections are treated in the OPD & the response is satisfactory.

In our study, the blood diseases constitute 3.12% of the total morbidity whereas in Dr. Shrestha's (1) studies, the overall blood diseases constitute 2%. The differences may be due to lack of lab. facilities & non-attendance to the Hospital.

The Cardio-vascular diseases constitute 0.68% of the total morbidity in our study whereas in Dr. Shrestha's series it is 1.3%, & in Dr. Rajbhandari's series only Rheumatic fever is included & consists of 0.62%. It is very hard to find out the exact figures, as the facilities in the zonal hospital are very unsatisfactory.

And now for the most unsatisfactorily answered question of PUO=pyrexia of unknown origin, just not that we read in textbooks & medical books defining it the fever, unexplained by all available methods of investigations, which continues for more than 21 days. In our condition & cases, we come to know it in somewhat different context : PUO is the fever, which is not explained by clinical methods of investigations & minimum laboratory investigations as TLC, DLC, ESR Urine - R/E & M/E, Stool - R/E & M/E, & X-ray chest & CSF. As other facilities are not available, the diagnosis PUO is not considered logical & is not limited to its text-book extents, but we are mainly concerned with the final diagnosis of the case-history, we will put it under the same column. "PUO." In our services it occupies fifth place, consisting of 6.83% of the disease-pattern. We dare not to deny the fact that the antibiotic cover during the course of illness & hospital admission (with complaints of only fever)

is the key-problem, which gives us false final diagnosis : PUO. But in our hospital conditions & facilities with prevalency of infectious & sometimes fatal disease, in the community, to put the patients under certain risks & danger for the purpose of diagnosis is very risky, because we don't have the minimum laboratory facilities of culture & reliable diagnostic procedures, not saying about the modern methods of bio-chemical, electronic & virological, electrolyte & cytological methods & level of investigations. But we assume that most of the PUO - cases have infectious diseases in their root & the poor hygienic condition of the population is well known to us. In Dr. Shrestha's(1) Series, PUO accounts of 4.5% cases in Kanti Children's Hospital, where lab. facilities are available in better conditions including culture & sensitivity test. So our study may be considered logical, consisting of 6.83%.

The column "Others" includes the remaining Systems, involved in the diseases, as musculo - skeletal system skin, poisoning & snake - bites, They are various in nature, & don't constitute majority, if grouped separately. In our study they are placed in the fourth position with the frequency of 7.60%. They may constitute different proportion in each hospital with different age groups.

CONCLUSION.

The paediatric contingent in general is not negligible, and constitutes about 1/3 (third part) of the total outdoor patients, which shows us the significance of paed. OPD, paediatrician, & paed. ward.

The male dominance in paediatric contingent is seen in hospital paed. OPD & ward. The ratio of female: male paed. patients being 1:1. 34(-2.7%-57.3%).

The mortality rate in the paediatric group is high- 22% of the total paed. admission.

The morbidity pattern shows us that the age group mainly affected is 0-1yr. age group, i. e. the infants.

The average staying in hospital is around 6 days., & the admission rate in the paed. ward is quite satisfactory.

Different hospitals in different geographical locations, with cultural variations of the population. social status & knowledge of health & hygiene, economic strata influence on the morbidity-pattern.

Although, the disease- pattern in different hospitals may vary from each other, the organs & systems involved in the morbidity of paediatric patients are virtually & significantly the same for Nepalese children: The first place being occupied by disease of the respiratory system, followed by diseases of the central nervous system & digestive system, all of which in total account about 80% of the total morbidity with the possible variation on the pattern of involving systems, in general hospitals & specialised hospitals.

(More details on the disease pattern in the paediatric group we expect to analyze shortly.)

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