Research Paper

Study of Morbidity Pattern of Diseases Under Imnci in 2 Month - 5 Yr Age Group in Urban Slums of Raipur City, Chhattisgarh

Medical Science

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ABSTRACT

Introduction: Underfive children death in India still subject of concern, many of these deaths could be prevented by appropriate access, utilization of healthcare facilities & awareness of diseases. Therefore to evaluate morbidity pattern under IMNCI in slum of Raipur this study were planned.

Methods A retrospective, observational study of 407 children in 2month -5yr age group, Nutritional status was assessed, detail history ARI, diarrhoea, fever, nutrition, vaccination to approach morbidity pattern.Results were analyzed statistically using 95% confidence interval.

Result: Female subjects were found to be more wasted& stunted. Less than 50% children covered with booster dose of vaccination. Only 40% children with diarrhoea treated with ORS. 29% had malaria, 12 % measles; very severe pneumonia seen in 33% of case, 59% children had palmer pallor. 12 % of ear infection .

Conclusion: Educate the mothers in slum area regarding utilization of healthcare facilities are key factor for improvement in underfive children health status.

Introduction

Chhattisgarh is one of youngest state of India. Raipur & Drug account for half of urban population in Chhattisgarh. Urban slum poses special health problem due to poverty, overcrowding, poor sanitation, unhealthy drinking water supply, unhygienic surrounding, and lack of organized health infrastructure. Every day, more than 26,000 children under the age of five die around the world and approximately 28% of all deaths of newborns and 23% of all infant deaths in the world occur in India many of these deaths could be prevented by appropriate access, utilization of healthcare facilities & community practices[1,2]

IMNCI is an integrated approach to child health focused on primarily on most common cause of child mortality such as diarrhea, pneumonia, measles, malaria and malnutrition, illness affecting 0-2month, 2 month - 5 years including both preventive and curative component to be implemented by families. India adapted the Integrated Management of Childhood Illness (IMNCI) strategy, aiming to reduce its newborn and infant mortality burden[3]. Since Raipur city covers large proportion of total slum of Chhattisgarh therefore to evaluate 2 month to 5 years health status and factor influencing the outcome present study were planned to conduct.

Material & methods

Type of study - A retrospective, observational study of 407 children in 2month -5yr age group. *Place of study* - various slums of Raipur city. Period - one year from September2012 to September 2013. *Inclusion criteria* - all children of 2mo-5yr age group, who are permanent residents of slums. *Exclusion criteria* - children more than 5 yr, children of guests and relatives from other places.

The study was initiated with approval of institutional ethical committee and written informed consent of parent was obtained prior to enrolment. The data was collected using pre tested and pre Designed proforma. Nutritional status was assessed by anthropometric measurements including height and weights of each subject were measured using standard techniques to assess the severity of undernutrition according to IAP & waterlow's classification. evaluation was done by interviewing the mother using different questionnaires regarding ARI, diarrhoea, fever, nutrition, vaccination were obtained to approach morbidity pattern according to IMNCI.

Results were tabulated & analyzed statistically using 95% confidence interval for every parameter.

Result

Table 1 showed In >2 month to 5 years age group malnourishment is prevalent with 41% male subjects in grade 1 PEM according to IAP classification (95% CI-0.36-0.45),44.9% female subjects in grade I PEM (95% CI-0.39-0.48), 50.7% (95% CI-0.45-0.55) male and 57% (95% CI-0.51-0.61) female subjects are found to be stunted; 29.2% (95% CI-0.24-0.33) males and 24.2% (95% CI-0.19-0.28) female subjects were found to be wasted (according to waterlow's classification).

TABLE 1 DISTRIBUTION OF SUBJECTS ACCORDING TO NUTRITIONAL STATUS													95% CI
Nutritional Status	Male (Age in Years)										Total		
	1		2		3		4		5				
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
Normal	4	10.8	3	7.1	6	9.5	5	5.4	3	8.8	21	9.2	(0.06-0.12)
GdⅠPEM	15	40.5	17	40.5	25	39.7	21	59.5	14	41.2	94	41.0	(0.36-0.45)
GdⅡPEM	10	27.0	14	33.3	19	30.2	16	30.2	10	29.4	69	30.1	(0.25-0.34)
GdⅢPEM	5	13.5	4	9.5	7	11.1	7	13.2	4	11.8	27	11.8	(0.08-0.15)
GdⅣPEM	3	8.1	4	9.5	6	9.5	2	5.5	3	8.8	18	7.8	(0.05-0.13)
Total	37	100	42	100	63	100	53	100	34	100	229	100	
Nutritional Status	Female (Age in Years)										Total		95% CI
	1		2		3		4		5				
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
Normal	3	10	3	7.9	7	13.2	2	9.5	2	5.6	17	9.6	(0.07-0.12)
GdⅠPEM	15	50	21	55.3	24	45.3	8	38.1	14	38.4	80	44.9	(0.39-0.48)
GdⅡPEM	9	30	11	32.4	17	32.1	7	33.3	18	50	62	34.8	(0.29-0.38)
GdⅢPEM	2	6.7	4	10.5	3	5.6	3	14.3	1	2.8	13	7.3	(0.47-0.09)
GdⅣPEM	1	3.3	1	2.6	2	3.8	1	4.8	1	2.8	6	3.4	(0.02-0.05)
Total	30	100	38	100	53	100	21	100	36	100	178	100	

In >2 month – 5 year age group 52% subjects were reported to have episodes of fever with cough, cold and breathlessness suggestive of Pneumonia (95% CI-0.47-0.56) while 39% had fever, with cough, cold, breathlessness and rib retraction, suggestive of Severe Pneumonia (95% CI-0.34-0.43), 33% had fever with cough, cold, breathlessness, rib retraction and lethargy suggestive of Very Severe Pneumonia (95% CI-0.28-0.37), out of which only 53.8% were referred (95% CI-0.45-0.60). Parents still mostly (63.1%) seek treatment from GP (95% CI-0.58-0.67) and only 23.1% from MO (95% CI-0.19-0.27). (**Table 2**)

TABLE 2 DISTRIBUTION OF PATTERN OF ARI ON THE BASIS OF EPISODES OF FEVER, FEVER FCC, FCCB, FCCBR, FCCBRL(N-407)									
Episodes of fever				FCCB with Rib Retraction			FCC with Breathlessness		
	No.	%	95% CI	No.	%	95% CI	No.	%	95% CI
Can't Recall	53	13	(0.09-0.16)	247	61	(0.56-0.65)	197	48	(0.43-0.52)
1	93	23	(0.19-0.27)	88	22	(0.17-0.26)	129	32	(0.27-0.36)
2	140	34	(0.29-0.38)	31	7	(0.04-0.09)	37	9	(0.06-0.11)

3	60	15	(0.11-0.18)	40	9.8	(0.07-0.12)	32	8	(0.05-0.10)
4 & above	61	15	(0.11-0.18)	1	0.2	(0.01-0.03)	12	3	(0.01-0.05)
Fever With Cough & Cold				FCCBR with Lethargy			Duration(days) of illness		
Can't Recall	57	14	(0.10-0.17)	273	67	(0.63-0.72)	49	12	(0.11-0.15)
1	69	17	(0.14-0.20)	85	21	(0.38-0.04)	-	-	-
2	139	34	(0.29-0.38)	16	4	(0.01-0.05)	239	59	(0.54-0.63)
3	97	24	(0.04-0.28)	25	6	(0.04-0.08)	2	0.2	(0.002-0.006)
4 & above	45	11	(0.07-0.14)	8	2	(0.006-0.03)	117	29.8	(0.24-0.33)
				273	67	(0.63-0.72)			
Type of Medicine taken for t/t of ARI:				Source of treatment taken for ARI					
Septran	231	57	(0.52-0.61)	Aangan Badi	(0.001-0.015)		3	0.74	
Amoxycillin	29	7	(0.04-0.09)	ANM	(0.02-0.06)		16	3.9	
Cephalexin	16	4	(0.02-0.05)	GP	(0.58-0.67)		252	63.1	
Cefpodoxime	44	11	(0.07-0.14)	MO	(0.19-0.27)		94	23.1	
Can't Recall	87	21	(0.17-0.24)	No Treatment	(0.07-0.14)		44	10.8	
Referral of very severe pneumonia cases				*FCC- Fever With Cough & Cold			*FCCBRL- FCCBR & lethargy		
Yes	98	53.84	(0.48-0.57)	*FCCB-FCC & Breathlessness					
No	84	46.16	(0.41-0.50)	*FCCBR-FCCB & rib retraction					

About 29% subjects had Fever with Chills and Rigor, suggestive of Malaria (CI-0.24-0.33) out of which only 11.8% were given Antimalarial (95% CI-0.09-0.15). Only 12% subjects were found to have Fever with Rash suggestive of Measles (95% CI-0.08-0.15) out of which only 20% were referred (95% CI-0.16-0.23) and most of them (80%) were not referred (95% CI-0.76-0.83). **(Table 3)**

TABLE 3 DISTRIBUTION OF SUBJECTS ACCORDING TO EPISODES OF FEVER, FEVER WITH CHILLS & RIGOR, TREATMENT, FEVER WITH SIGNS OF MEASLES, REFERRAL(n-407)

Episodes of fever (in days)	No.	%	95% CI	Medicine	No.	%	95% CI
1	80	20	(0.16-0.23)	Septran	62	52.3	(0.47-0.56)
2	220	54	(0.49-0.58)	Amoxycillin	3	2.7	(0.02-0.03)
3	54	13	(0.09-0.16)	Antimalarial	14	11.8	(0.09-0.15)
4 & above	39	10	(0.07-0.12)	Others	11	9.3	(0.06-0.11)
Can't Recall	14	3	(0.24-0.35)	Can't Recall	25	21.4	(0.17-0.24)
Total	407	100		Total	119	100	
Presence of Fever with Chills & Rigor				Presence of Fever with signs of measles			
Yes	119	29	(0.24-0.33)	Yes	49	12	(0.08-0.15)
No	288	71	(0.66-0.75)	No	358	88	(0.86-0.89)
Total	407	100		Total	407	100	
Referral for measles							
Yes	10	20	(0.16-0.23)				
No	39	80	(0.76-0.83)				
Total	49	100					

Maximum two episodes of loose motion were reported in 58% (95% CI-0.53-0.62). Blood mixed stool was found in 20% of cases (suggestive of dysentry) (95% CI-0.16-0.23). No referrals were made in 90% cases of dysentry (95% CI-0.87-0.92). Only 40% of patients suffering from diarrhoea were given ORS (95% CI-0.35-0.44). Maximum duration of illness during diarrhoea was found to be 2 days in 43% of selected subjects (95% CI-0.38-0.47). Taboos are found to be distributed unequally. In 19.7% breastfed

was stopped (95% CI-0.16-0.23) & 70% mothers had knowledge of home based ORT (95% CI-0.65-0.75). (**Table 4**)

TABLE 4 DISTRIBUTION OF CASES OF DIARRHEA

				Duration of illness (in days)			
No. of loose motions	No.	%	95% C.I	1	55	14	(0.10-0.17)
1	102	25	(0.20-0.29)	2	176	43	(0.38-0.47)
2	236	58	(0.53-0.62)	3	61	15	(0.11-0.18)
3	37	9	(0.06-0.12)	4 & above	26	6	(0.04-0.08)
4 & above	32	8	(0.05-0.10)	Can't Recall	89	22	(0.17-0.26)
Total	407	100		Total	407	100	
Presence of blood				Knowledge			
Yes	42	20	(0.16-0.23)	Yes	283	70	(0.65-0.75)
No	365	80	(0.76-0.83)	No	124	30	(0.25-0.34)
Total	407	100		Total	407	100	
Referral for dysentery				Type of Taboo			
					No.	%	95% C.I
Yes	4	10	(0.07-0.13)	Stopping of Breast feed	80	19.7	(0.16-0.23)
No	38	90	(0.87-0.92)	Lukewarm water	52	12.8	(0.09-0.16)
Total	42	100		Desi Treatment	104	25.5	(0.20-0.29)
Type of medicine				None of Above	175	43	(0.38-0.47)
ORS	165	40	(0.35-0.44)				
Home Based Fluid	52	13	(0.09-0.16)				
Antibiotics	77	19	(0.15-0.22)				
Zn Preparation	33	08	(0.05-0.10)				
Can't Recall	80	20	(0.16-0.23)				
Total	407	100					

Maximum 59% subjects were reported to have Palmer Pallor (suggestive of Anaemia) (95% CI-0.54-0.63) while only 22% were given IFA (95% CI-0.17-0.26) and only 18.8% were referred for Severe Pallor (95% CI-0.14-0.21). Majority of subjects (53.5%) had Ear Infections (95% CI-0.48-0.57) while 8.5% had signs suggestive of Mastoiditis (95% CI-0.06-0.12), out of which only 12% were referred (95% CI-0.08-0.15). In >2 month to 5 years age group only 48% were fully immunized (95% CI-0.43-0.52) with only 48.3% having taken one dose of oral vitamin A (95% CI-0.43-0.52) 89% were given measles vaccination (95% CI-0.85-0.92).(**Table 5**)

TABLE 5 DISTRIBUTION OF CASES ACCORDING TO PALLOR, EAR PROBLEM & VACCINATION

Palmer Pallor	No.	%	95%CI	Ear Problem	No.	%	95% CI
Yes	241	59	(0.54-0.63)	Mastoiditis	34	8.5	(0.06-0.12)
No	167	41	(0.36-0.45)	Acute ear problem	82	20	(0.16-0.23)
Total	407	100		Chronic ear problem	102	25	(0.20-0.29)
Treatment taken				No ear problem	189	46.5	(0.49-0.58)
Yes	89	22	(0.17-0.26)	VACCINATION			
No	151	88	(0.73-0.82)	BCG	359	98	(0.96-0.99)
Total	240	100		DPT & OPV 1st	391	96.1	(0.54-0.97)
Referral for severe pallor				DPT & OPV 2nd	384	94.1	(0.51-0.96)
Yes	45	18.8	(0.14-0.21)	DPT & OPV 3rd	321	78.8	(0.75-0.82)
No	195	81.2	(0.77-0.84)	Measles	362	89	(0.85-0.92)
Total	240	100		DPT & OPV booster	163	40	(0.35-0.44)
Total	24	100		Oral Vit. A	197	48.3	(0.43-0.52)
Referral for mastoiditis				DT	16	3.9	(0.02-0.06)
Yes	3	12	(0.08-0.15)	No Immunization	0	0	
No	21	88	(0.84-0.89)	Total	407	100	

Discussion

According to study conducted by Nutrition foundation of india new delhi, Nandani Saxena at el (1996), Awasthi S at el & saxena N at el (1997) found that prevalence of malnutrition in under five were similar to present study[4] & B. Aneja et al (2000) were less than our study. Our data supported by the national health survey finding[5]. The prevalence to moderate to severe form of malnutrition was found to be consistently higher during second & third year of life.

Poverty, low level of literacy and lack of knowledge to utilize health care facilities are main reason for increased incidence of ARI in Urban Slum. W.Paul Glezen, M.D. Et Al (1971) & M.P.Singh et al (1996) , Dipti Gupta et al & Juhi Taneja et al conducted study on epidemiological pattern ARI the finding were similar to present study[6,7].

Various study has been conducted regarding epidemiological profile of diarrheal diseases In >2 month to 5 year age group ,

John D. Snyder et al (1964) ,M. Saran et al (1976-77), T.S. Daral et al (1984) ,Prof. Shafika Nasser et al (1988) & Margaret Kosek et al found that prevalence of diarrhoea were similar to our study[8,9] & Sakuntala Bhatnagar et al (1986) & S. Nahar et al found that diarrheal episodes was more than this study & About knowledge of ORT were less than our study[10].

V.P. Reddaiah et al (1991) , D.K. Taneja et al (1994) found variable result when compared to present study . S. Mangala et al (1995-96) DLHS3 (2007-08) reports found awareness of mother regarding ORS which is similar to our study[11,12].

Shr-Jie Wang et al (2005), Jennifer F. Friedman et al (2005), Yazoume Ye et al (2007) studied various aspect of malaria, result were similar to our study. Incidence of malaria is similar to urban studied specially from sub-continent and more than western studies[13,14,15]. This is obviously due to better living conditions, climate and decreased vector burden in western world. Although the percentage who took antimalarial is comparable to western study, might be due to impact of National Malaria Control Programme.

Vikas K. Desai et al (2002) conducted a study incidence of measles & vaccination coverage result were similar to our study whereas in Vikas K. Desai et al (2003), Sandip Kumar Ray et al (2004), Kumar R.S. et al (2008) less than present study and referral were which is more than our study[16,17]. Incidence of measles is low in our study as compared to other studies from slum area which is mainly due to better immunization coverage.

Kamal N Joarder AH et al (2004) & Maharajan M, Bhandari S. et al (2006) & B.P. Gladstone, JP Muliyil et al (2007) conducted a study had CSOM, which is less than our study[18,19]. AOM, Mastoiditis similar to our study. Referrals were made in 20%, which is more than our study. Most of the studies measured the prevalence rates, not the incidence rates. None of the surveys mentioned the term CSOM or provided a definition similar to WHO definition of CSOM. Therefore magnitude of the bias is impossible to measure.

The prevelance of anemia were similar to study conducted by A.S Mallin et al (1988), nutritional surveillance project bulletin (2000) regarding anemia in underfive children & in sharda sindhu et al , Kamla Gupta et al were more than present study[20,21,22]. High frequency of anemia among group might be due to dietary inadequacy.

In >2 month to 5 year age group A.C. Patoway, et al (1998) , A.K. Govila et al (1990) , Rashmi Sharma et al (2008) conducted a study on "Coverage Evaluation survey of immunization findings are less than findings of this study. Malini Kar, et al (2001) result were more & Vikas Bhatia et al (2004), Punith K. et al (2008) were similar to our study[23,24,25,26].

B.K. Swain and S. Mishra (2006), study found that vitamin A coverage were less than our study whereas Malini Kar, et al (2006) states more than our study[27].

IEC (Information, Education and Communication) activities must be targeted to educate the mothers in slum area. This will help reduce the burden of morbidities of diseases under IMNCI.

Conclusion & recommendation

I would like to conclude that lower socioeconomic conditions, detrimental child rearing practices and poor healthcare delivery system are cause of morbidities among underfives of urban slums of Raipur City. Measure to reduce underfive morbidity in urban slum required, improve maternal education, adequate immunization, planned health infrastructure, integration of existing health care program and facilities, strengthen referral system and active participation of community.

REFERENCE

1. Chhattisgarh human development report 2005.available from URL http://www.undp.orgoin/indoor.php? | 2. United Nations Children's Fund. Levels and trends in child mortality: report 2010. Estimates developed by the UN Inter-Agency Group for Child Mortality Estimation. Unicef, 2010 | 3. World Health Organization. Integrated management of neonatal and childhood illnesses. WHO, 2003. | 4. Saxena, Nandini, DeepikaNayar, and UmeshKapil. "Prevalence of underweight, stunting and wasting." Indian pediatrics 34.7 (1997): 627-31. | 5. Aneja, B., Singh, P., Tandon, M., Pathak, P., Singh, C., &Kapil, U. (2001). Etiological factors of malnutrition among infants in two urban slums of Delhi. Indian pediatrics, 38(2), 160-165. | 6. Glezen, W. Paul, and Floyd W. Denny. "Epidemiology of acute lower respiratory disease in children." New England Journal of Medicine 288.10 (1973): 498-505. | 7. Singh, M. P., and SushilaNayar. "Magnitude of acute respiratory infections in under five children." The Journal of communicable diseases 28.4 (1996): 273-278. | 8. Bhargava, S. K., et al. "Oral rehydration of neonates and young infants with dehydrating diarrhea: comparison of low and standard sodium content in oral rehydration solutions." Journal of pediatric gastroenterology and nutrition 3.4 (1984): 500-505. | 9. Kosek, Margaret, Caryn Bern, and Richard L. Guerrant. "The global burden of diarrhoeal disease, as estimated from studies published between 1992 and 2000." Bulletin of the World Health Organization 81.3 (2003): 197-204. | 10. Bhatnagar, Shakuntala. "Health services development in urban areas."Perspectives and issues 12 (1989): 71-93. | 11. Reddaiah, V. P., and S. K. Kapoor. "Epidemiology of diarrhea and its implications for providing services." The Indian Journal of Pediatrics 58.2 (1991): 205-208. | 12. Taneja, D. K., et al. "Diarrhea management in some Jhuggi clusters of Delhi."Indianpediatrics 33.2 (1996): 117-9.blic Health 1998; 112: 233-236. | 13. Wang, Shr-Jie, et al. "Rapid urban malaria appraisal (RUMA) I: epidemiology of urban malaria in Ouagadougou." Malaria Journal 4.1 (2005): 43. | 14. Friedman, Jennifer F., et al. "Malaria and nutritional status among pre-school children: results from cross-sectional surveys in western Kenya." The American journal of tropical medicine and hygiene 73.4 (2005): 698-704. | 15. Yé, Yazoumé, et al. "Assessing the risk of self-diagnosed malaria in urban informal settlements of Nairobi using self-reported morbidity survey." Malaria journal 6.1 (2007): 71. | 16. Desai, Vikas K., et al. "Impact assessment of mass measles vaccination." The Indian Journal of Pediatrics 69.12 (2002): 1037-1040. | 17. Ray, Sandip Kumar, et al. "Epidemiological study of measles in slum areas of Kolkata." The Indian Journal of Pediatrics 71.7 (2004): 583-586. | 18. Kamal, N., et al. "Prevalence of chronic suppurative otitis media among the children living in two selected slums of Dhaka city." Bangladesh Medical Research Council bulletin 30.3 (2004): 95. | 19. Gladstone, Beryl Primrose, et al. "Infant morbidity in an Indian slum birth cohort." Archives of disease in childhood 93.6 (2008): 479-484. | 20. Malin, A. S., and R. W. Stones. "Nutritional Anaemia in the Urban Poor: a Communitybased Study of Under Fives in an Indian Slum." Journal of tropical pediatrics 34.5 (1988): 257-259. | 21. Gupta, Kamla, Fred Arnold, and H. Lhungdim. "Health and living conditions in eight Indian cities. National Family Health Survey (NFHS-3) India 2005-06." (2009). | 22. Sharada, Sindhu, Kantakumari, ManjulaUppal. Prevalence of anemia in schedule caste preschool children of Punjab. Indian Journal of Medical Science. 2002 may; 56 (5): 18-21. | 23. Patowary, A., Jaiswal, O., Lal, S., Govila, A.,Pratinidhi, A., Sharma, A.,&Saxena, B. (1990). Coverage evaluation survey of immunization in eleven states of India. Indian Journal of Community Medicine, 15(4), 222 | 24. Sharma, Rashmi, Vikas K. Desai, and AbhayKavishvar. "Assessment of immunization status in the slums of surat by 15 clusters multi indicators cluster survey technique." Indian journal of community medicine: official publication of Indian Association of Preventive & Social Medicine 34.2 (2009): 152.\ | 25. Kar, Malini, V. P. Reddaiah, and Shashi Kant. "Primary Immunization Status of Children in Slum Areas of South Delhi-The Challange of Reaching the Urban Poor." Indian Journal of Community Medicine, 26 (3), pp. 151-154 (2001) | 26. Punith, K., et al. "Evaluation of primary immunization coverage of infants under universal immunization programme in an urban area of Bangalore city using cluster sampling and lot quality assurance sampling techniques." Indian journal of community medicine: official publication of Indian Association of Preventive & Social Medicine 33.3 (2008): 151. | 27. Swain, Basanta K., and Suchismita Mishra. "Immunization coverage among migrant tribal children in slums of Orissa [letter]." Indian pediatrics 43.11 (2006): 1011-1013. |