RESEARCH PAPER | Medical Science | Volume : 5 | Issue : 10 | October 2015 | ISSN - 2249-555X

Study of effect of Reorientation of IMNCI training of Anganbadi worker on Morbidity & Home Based Management of under 5 children of urban slum of southern Raipur city

KEYWORDS: Integrated management of neonatal and childhood illness (IMNCI), under 5, Anganwadi

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ABSTRACT

Introduction - *Community based newborn care strategies in resource poor countries with high neonatal mortality show significant reduction in neonatal and under 5 mortality. Aim of this study is to evaluate the effect of interrupted IMNCI training of Anganwadi worker on the health status of children under 5 years of age living in urban slum of Raipur.*

Material Methods- *Intervention was the orientation training programme (based on IMNCI) of Anganbadi worker. To know their knowledge about IMNCI a pre test and post test was conducted after training in study population and obtained Data was statistically analyzed by using appropriate statistical methods.*

Results- *Mean illness episodes/year was significantly ($p<0.05$) reduced in the intervention group as compared to control group. Mean diarrheal episode/yr was significantly reduced ($p<0.05$) in all the age groups in the intervention group as compared to control group. Mean febrile illness episode was observed to be reduced in intervention group ($p<0.05$) in all the categories.*

Conclusion- *Continued training and supervision of the community health workers will help them in better identification, simple home based management and timely referral if required of these cases. Acceptance of these interventions could be improved by promoting more cooperation with families by means of health education of mothers and caregivers (relative).*

INTRODUCTION

Altogether more than 10 million children die each year in developing countries before they reach their fifth birthday. Seven in ten of these deaths are due to acute respiratory infections (mostly pneumonia) diarrhea, measles, malaria, or malnutrition and often combination of this conditions[1]. Projections based on the 1996 analysis The Global burden of disease indicate that these conditions will continue to be major contributors to child death in 2020 unless significantly greater efforts are made to control them[2] Surveys of the management of sick children at these facilities reveal that many are not properly assessed and treated and that their parents are poorly advised[3].

The objectives are to reduce deaths and the frequency and severity of illness and disability and to contribute to improved growth and development[4].

Community based newborn care strategies in resource poor countries with high neonatal mortality show significant reduction in neonatal mortality[5]. as evidenced by following studies Bang et al,[6] Manandhar et al[7], Jokhio et al[8], all these studies done by excellent researchers with good resources and dedicated workers supervised by trained researchers. However, there are innumerable problems in actual implementation of these strategies[9]. It will be a challenging task to upscale the home care the newborn care package to the most vulnerable districts in certain states in India such as U.P, Chhattisgarh, Jharkhand and Bihar where NMR,IMR AND U5MR are alarmingly high. *NMR-51.1, IMR-70.8, U5MR-90.3 in Chhattisgarh (NFHS-III).*

In order to achieve the millennium development goal of reduction in neonatal mortality in resource poor countries with weak primary health care system, it is important to establish a good outreach and home based care by improving home care practices and demand for skilled care at birth[10]. There is an urgent need for improvement of care seeking behavior of the community by behavior change communication so that people accept the services provided by the government[11]. The MDG can only be achieved by improving all available services and not only newborn care[12].

Material and methods

The guiding principle of the Methods section should be clarity about how and why a study was done in a particular way. The section should include only information that was available at the time the plan or protocol for the study was being written. all information obtained during the study belongs in the Results section.

i. Selection and Description of Participants

Type of study -Interventional prospective field study
Place of study- Urban slum of southern Raipur city.
Duration of study- September 2008- September 2009.

Selection of cases

All the Anganbadi workers having at least received their metric education working in the urban slum of Telibandha

Volume : 5 | Issue : 10 | October 2015 | ISSN - 2249-555X

of Raipur urban.

Measurable outcome
1) Reduction in the number of illness episode.
2) Reduction in the diarrheal episodes.
3) Reduction in the febrile episodes.

Intervention:
Intervention was the orientation training programme (based on IMNCI) of Anganbadi worker.

ii. Technical Information

Material & Method
For the study, slum area of Telibandha of Raipur city was taken which comprises of 25 Anganbadi centers each having 1 Anganbadi worker. Each Anganbadi centre covers a population of 1000 having 10-15% of under five years of children in 1 centre. 15 Anganbadi workers were selected out of which only 8 participated in the study.

To know their knowledge about IMNCI a pre test was conducted before the study and training was then conducted which was an interrupted training based on IMNCI for about 4 hours a day for 5 days and a specialized 1 day training conducted by the IMNCI trainee with clinical class was given to the worker through audio visual media and printed pamphlet was given to all the participating health worker so that they can carry it and go through it if any doubt after such training a post test was conducted in order to know about the improvement in the knowledge of the Anganbadi worker.

After such training worker were asked to share their knowledge with mothers and care takers of children at each visit and 1-2 extra visit was asked to give by the workers. After 6 months of training, mothers of children under five yrs of age who were registered at the centre were interviewed. 839 mothers participated in the interview and these children were selected as cases and 800 mothers of the same age group children of other Anganbadi centre who were not trained was taken as control and interviewed with the same questionnaire and improvement in health status of the children was assessed.

iii. Statistics
Data was then statistically analyzed by using Z test to determine relationship between variables to compare means and chi square test was used to compare proportion

Result
Mean illness episodes/yr was significantly ($p<0.05$) reduced in the intervention group as compared to control group. 1-5yrs age (2.54 epi/yr vs 4.58 epi/yr) in 2mo-1yr age group (2.09 epi/yr vs 2.15 epi/yr) and in 0-2 months 44.45 of the children suffered 1 episode of illness as compared to control group where 66.6% children suffered from 2 episodes of illness.

Mean diarrheal episode/yr was significantly reduced ($p<0.05$) in all the age groups in the intervention group as compared to control group; in 1-5 yrs age (1.3 epi/yr vs 3.2 epi/yr) and in 2mo-1yr age (0.06 epi/yr vs 1.10 epi/yr) in intervention and control group respectively. Mean febrile illness episode was observed to be reduced in intervention group ($p<0.05$) in all the categories; 1-5 yr age group; (1.97 epi/yr vs 4.72 epi/yr) and in 2mo-1yr (1.343 epi/yr vs 1.83 epi/yr) in intervention and control group respectively. In 0-2 months age group 755 children were free from febrile episodes in intervention as compared to 66.7% in control group

Most presenting symptom was fever and cold (40%) in 1-5 yrs age group and 76% of the children presented with fever and ARI in 0-2 months and ARI in 26.09% in 2 month-1yr age group.

Discussion
The incidence of illness episodes in case and control group it was observed that mean illness episodes in the age group 1-5 yrs was 2.54 episodes /year which was significantly less than control group having mean illness episode of 4.58 epi/yr and in 2m-1y 2.09 epi/yr as compared to 2.15 epi/year and episodes. And in 0-2 months 75% of the child in the case group had at least 1 episode of illness as compared to control group in which 22.22% of children had at least one episode of illness and 44.44% had 2 episode of illness on the whole 66.66% of the children In control group had illness 1-2 illness episode in the past 1 year as compared to75% in case group this was statistically significant ($p<0.05$), when compared with one of the study by *Shally Awasthi et al.(2006)*[13] they in their study found that 39.5% of the caregivers had seen a sick neonate in the past 2 years in neonate.

Pavitra mohan et al.(2004)[14] to study the impact of counseling on careseeking behavior in families with sick children, in this study which was taken in under five age group during the follow up period,2851 episodes of child illness were reported by the mothers in the intervention group and 2654 in the control group (mean 2.45 in intervention group vs 2.38 in the control group which when compared to this study had 2.54 epi/yr of mean illness episode in case group and 4.58 epi/yr of mean illness episode in control group in past 1 year. *Amol R Dongre(2009)*[15] in his study regarding awareness and health care seeking for newborn danger signs among mothers in peri urban Wardha about 27 (39.5%) babies were sick during the newborn period.

P.R.Deshmukh et al (2005) in their study of acute childhood morbidities in rural Wardha in under 3 years of children found that overall prevalence of acute morbidity was 59.9% i.e. at least one of the conditions like fever, cough and cold, pneumonia, diarrhea, dysentery was present during the 2 week preceding the survey. The prevalence was minimum (54.2%) in the first year of life, while it was maximum (65.8%) in second year of life.

The diarrheal episodes per year in the child in control and case group it was observed that there was statistically significant ($p<0.05$) difference in the diarrheal episodes in the case group after the one year of reorientation of health worker and also up gradation of knowledge of the disease in care givers. It was observed that mean diarrheal episode in 1-5 yrs age group was 1.3 episode/year as compared to 3.2 epi/yr in control similar difference was found in 2m-ly age group i.e. 1.10 epi/yr in control and 0.06 epi/yr in intervention and in 77.8% of control group had episodes of diarrhea in 2m as compared to 50% in intervention group. In one of their study *P.R.Kolstad et al(1997)*[16] found that out of 1226 children one or more signs were present in 99 children diarrhea was found in 28% of the children.

According to *Walter James (1972)*[17] in his longitudinal study of the morbidity of diarrheal and respiratory tract infections in 137 children and found that in children under 1 year of age, the average duration of an attack of

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diarrhea was the same for both malnourished and normal weight children. But over 1 year, the attack lasted significantly longer, 3 days. The frequency of vomiting and the number of stools passed per day were the same in the same group. The number of attacks of diarrhea with fever, watery stool, and the passage of blood was significantly higher in the group of malnourished children (p=0.05). However, no comment was given on number of episodes/ year.

N.C.Luwang and S.N.Dutta (1980)[18] in their study Of the 508 children included in the study 196 (38.6%) had diarrheal episodes in the preceding 3 months. Overall prevalence of malnutrition was 80.1% among children who had diarrheal episodes. The difference was statistically significant (p<0.01). Frequency of different grades of malnutrition was apparently higher among children who had diarrheal disease. It was revealed that 77.6% of children who had normal growth did not suffer from diarrhea. 43.4%-65.4% of under nourished children and episode of diarrhea and there was gradual increase of occurrence rate of diarrheal disease with increasing severity of malnutrition. But no comment was given in no. of episodes of diarrhea/year.

EL Faith, EL Samani, Walter C, Willet and James H. Ware (1983)[19] of 445 Sudanese children aged under five years was studied, Children were weighed and measured at two months interval and diarrhea incidence was ascertained during biweekly house visits. During child intervals that followed a prior episode of diarrhea, underweight was associated with a higher incidence of diarrhea after adjusting for confounding effects of age and socioeconomic factors (odds ratio=1.7, 95% confidence interval (C.I=1.1-2.8). During child interval with n history of diarrhea in the preceding interval, the association with underweight was less(OR=1.4, 95%,C.I=0.9-1.6) among these children, stunting was significantly associated with diarrhea (OR=1.4, 95% CI=1.0-1.8).

Moderate malnutrition was associated with a two fold increased risk of multiple episodes of diarrhea. The mother's overall report of the child's episode of diarrhea was highly concordant with our definition of an episode as determined by the number of bowel movements per day and the number of days of diarrhea in only 80 episodes of diarrhea (5%) reported by the mothers were there fewer than three bowel movements per day and only seven episodes (0.4%) reported by the mothers lasted for less than one day, which were not included in the analysis.

B.N.S.Walia, S.Singhi, S.K.Gambhir & S.R.Sroa (1989)[20] total of 838 children under 5 yrs of age were followed up in two villages of Punjab for a period of 1 year for diarrhea morbidity, ORS usage and nutritional status. Overall frequency of diarrhea was 0.78 episode /child/yr. Children weighing <70% of reference weight for age had about 25% higher incidence of diarrhea (102 episodes/100child/ yr) as compared to those who weighed >71%(75 episode/100 children/yr;p<0.05).

K. Anand, K.R. Sundram, J. Lobo, S.K. Kapoor (1994)[21] 250 children in the age group of 6-47 months were followed up for one year. The prevalence of moderate to severe malnutrition in the children was 35% out of which 8.8% were severely malnourished. Although severely malnourished had 0.56 more episodes of diarrhea in a yr compared to normally nourished, the difference was not statistically significant. In one of their study on under five mortality in the urban slums of Lucknow, by *Shally Awasthi et al 2006* found that symptom associated with death of children less than 5 years included diarrhea in 18.3%. Episodes of febrile illness in different age group which was found to be significantly less in case group.

In 1-5 yrs of age, mean episode of fever was 1.97 epi /yr as compared to 4.726 epi/yr similarly in 0-2 months 75% of the children were fever free as compared to 66.7% in control and in 2m-ly age group mean episode of illness was 1.343 epi/yr as compared to 1.83 epi/yr which was statistically significant (p<0.05). In one of their study on under five mortality in the urban slums of Lucknow, by *Shally Awasthi et al (2006)*[14] found that leading symptom associated with death of the children was "high fever" in 21.1%. In another study by *Goswami et al* in evaluation of simple clinical signs of illness in young infants (0-2 months) and its correlation with WHO IMCI algorithm (7 days to 2 months). According to the them algorithm tends to over diagnose serious bacterial infection by 8-20% (in three age groups) as it classifies all serious bacterial infection, some of which had either environmental fever or mild URI. None of the previous studies have mentioned about the mean episode of fever.

Pavitra Mohan et al. (2004) during the follow up period, 2851 episodes of child illness were reported by mothers in the intervention group and 2654 in the control group (mean 2.45 in intervention vs 2.38 in control group). In a high proportion of these episodes mothers in both these groups reported seeking care outside the home. Intervention group mothers reported seeking care from an appropriate provider promptly (within 24 hours of recognition of illness) more often than the control group mothers.

E.A.F.Simoes et al (1997)[22] in their study concluded that most of the complaints 87% volunteered by the mothers were fever, cough, diarrhea and earache. *Shally Awasthi et al (2006)* in another study in neonates observed that most of the children presented with fever 183 (91.5%) out of which 128 (69.94%) sought for medical care after recognition**.** *P.R.Deshmukh et al. (2005)* observed that overall prevalence of acute morbidity was 59.9% i.e. at least one of the conditions like fever, cough and cold, pneumonia, diarrhea or dysentery was present during 2 weeks preceeding the survey. Most frequently reported symptoms were cough and cold (41%) and fever (34.1%), followed by pneumonia (6.7%), diarrhea (5.7%) and dysentery (0.3%).

Amol.R.Dongre et al.(2009) in their study on newborn in peri-urban Wardha observed that majority i.e. 55 (76.4%) mothers identified fever as a newborn danger sign.

Conclusion

Simpler guidelines on clinical basis are required so that community health worker with a limited educational background can decide which cases to be referred and which cases to be managed at home. Continued training and supervision of the community health workers will help them in better identification, simple home based management and timely referral if required of these cases. Acceptance of these interventions could be improved by promoting more cooperation with families by means of health education of mothers and caregivers (relatives). Community mobilization is an effective means to promote behavior change and thinking for care seeking and strengthening the household to hospital continuum. Educational intervention to improve care seeking for childhood illness in different settings should be developed.

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Distribution of various parameter				
Mean age of child in months	**Case**	**Control**		**P Value**
	0-2m	1.25	1.22	>0.05
	2m-1yr	8.09	6.48	>0.05
	1-5yr	33.54	31.65	>0.05
Maternal Age				
	0-2m	23.75yr	22.45yr	>0.05
	2m-1yr	24.22yr	22.9yr	>0.05
	1-5yr	24.44yr	24.48yr	>0.05
Family Size				
	0-2m	5.25	5.5	>0.05
	2m-11yr	5.43	6.11	>0.05
	1-5yrs	5.5	5.5	>0.05
Mothers Education				
0-2m	High	1	2	>0.05
	Middle	4	5	>0.05
	Primary	7	10	>0.05
	Uneducated	12	20	>0.05
2m-1yr				
	High	1	0	>0.05
	Middle	13	12	>0.05
	Primary	65	45	>0.05
	Uneducated	60	42	>0.05
1yr-5yr				
	High	6	4	>0.05
	Middle	46	50	>0.05
	Primary	253	270	>0.05
	Uneducated	372	340	>0.05
Working Status Of The Mother				
Yes	0-2m	12	17	>0.05
	2m-1yr	78	53	>0.05
	1yr--5yr	272	290	>0.05
Sex Ratio				
0-2m	Male	15	22	>0.05
	Female	6	15	>0.05
2m-1yr	Male	90	65	>0.05
	Female	48	34	>0.05
1-5yr	Male	344	334	>0.05
	Female	333	330	>0.05

Mean illness episodes/yr			
Age	Case	Control	P Value
2m-1yr	2.09 epi/yr	2.15 epi/yr	<0.05
1-5yr	2.54 epi/yr	4.68 epi/yr	<0.05

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