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ORIGINAL ARTICLE

SIGNIFICANCE OF INTEGRATED MANAGEMENT OF CHILDHOOD ILLNESS (IMCI) CHECK SIGNS AND ITS IMPLICATION IN CHILDREN AT PAEDIATRIC OUTDOOR DEPARTMENT

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ABSTRACT

OBJECTIVE: To assess the significance of integrated management of childhood illness (IMCI) check signs and its implication in children (aged 2 months to 5 years) at a Paediatric Outdoor Department, Jamshoro/Hyderabad.

METHODS: This cross-sectional study was conducted at a Paediatric Outpatient Department, Liaquat University Hospital, Jamshoro, Hyderabad, Pakistan. The study enrolled 5578 children from July 2015 to June 2016. Children meeting the inclusion criteria were enrolled in study. Detailed history was taken, followed by physical examination of children for assessment of acute malnutrition, anemia, immunization status, mebendazole status and vitamin A supplementation. A pre-designed performa was used to extract data and then analyzed later.

RESULTS: Out of 5578 children, 3317 (59.57%) were females while 2261 (40.53%) were males. Mean age of children was 24.78±14.57 months and mean weight of children was 8.67±2.45 kg. Common clinical presentations were cough (n=3036; 37.2%), fever (n=2818; 34.5%), diarrhea (n=1855; 22.7%), ear discharge (n=345; 4.2%), and sore throat (n=118; 1.4%). IMC check-signs regarding immunization status revealed full immunization in 4903 (87.9%) cases, partial immunization in 306 (5.5%) cases and no immunization/vaccination in 369 (6.6%) cases. Other check-signs included anemia (n=1592; 39.7%), mebendazole intake (n=1449; 36.1%), vitamin A intake (n=525; 13.1%) & malnutrition (n=445; 11.1%).

CONCLUSION: In our study most of the children were fully vaccinated, half of the population presented to be anaemic, and only few were malnourished. The study also revealed that about 1/3rd of the children consumed mebendazole and one by seventh of the study population had taken vitamin A.

KEY WORDS: Immunization (MeSH); Malnutrition (MeSH); Vitamin A (MeSH); Mebendazole (MeSH); Anemia (MeSH); Integrated Management of Childhood Illness (IMCI) (Non-MeSH).

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INTRODUCTION

Children are usually brought to out-door department (OPD) with many different complaints, thus there is a problem to make a single diagnosis.[1] Children attending the OPD can have multiple issues e.g., malnutrition, breast feeding problems, anemia, vitamin A deficiency, lack of vaccinations and worm infestations.[2] These children require a combined therapy for successful treatment. According to this integrated strategy, parents are involved in home care that is breast feeding, good nutritional provision and proper immunization.[3] An evaluation of Integrated Management of Childhood Illness (IMCI) strategy revealed that 13% reduction in under-five mortality occurred due to training of healthcare workers.[4] About 100 countries are now following this strategy.[5] Only a limited number of essential drugs are used in this strategy, to promote their rational use. Mother learns the use of oral drugs to be given at home. She is also counseled for follow-up visits.[6]

According to the National Nutrition Survey, 33% of all Pakistani children were underweight, nearly 44% were stunted, and 15% are wasted.[7] Nearly 44-50% pre-school children in South Asian regions were affected by severe Vitamin A deficiency[8], 35% children < 6 years of age in Pakistan have subclinical vitamin A deficiency.[9] The prevalence of worms' infestation in young children in Pakistan is 32.2%.[10] Anemia Prevalence among under 5 year old children in Pakistan was 58.80% in 2016, which was 70.80% in 1990.6 Globally there are about 165 million malnourished children (under five years), in which 50% reside in Asia.[11,12]

If doctors and nurses are trained for detailed screening evaluation, the assessment of co-morbid conditions can be improved significantly.[13] Pakistan is an underdeveloped country having the problem of clean drinking water, poverty lack of equal medical facilities for all children. Application of IMCI strategy may decrease the disease burden and can reduce the overall cost of health. Objective of this study was to assess the significance of checking the IMCI check signs i.e immunization, malnutrition, anemia, vitamin A and anti-helminthic status of children[14] hence to determine the frequency of these signs in children (below 5 years of age) coming to Paediatric Outpatient Department, Liaquat University Hospital, Jamshoro, Hyderabad,

TABLE I: CLINICAL PRESENTATION OF THE STUDY SAMPLE

Clinical Presentation	Frequency (n=5578)	Percentage
Cough	3036	37.2%
Diarrhea	1855	22.7%
Fever	2818	34.5%
Ear Discharge	345	4.2%
Sore Throat	118	1.4%

TABLE II: INTEGRATED MANAGEMENT OF CHILDHOOD ILLNESS CHECK SIGNS IN STUDY POPULATION

Integrated Management of Childhood Illness Check Signs		Frequency (n=5578)	Percentage
Immunization Status	Fully immunized	4903	87.9%
	Partially immunized	306	5.5%
	Not vaccinated	369	6.6%
Anemia		1592	39.7%
Malnutrition		445	11.1%
Mebendazole Intake		1449	36.1%
Vitamin A Intake		525	13.1%

Pakistan.

METHODS

This descriptive cross-sectional study was conducted at the Pediatric OPD of Liaquat University Hospital, Jamshoro, Hyderabad, Pakistan, after taking permission from ethical review committee of the Liaquat University Hospital Jamshoro. In the study, all the population of 5578 children was recruited as a sample by non-probability purposive technique from 1st July 2015 to 30th June 2016. The inclusion criterion was set as all children of either gender in age between 2 months to 5 years; while, all children coming for vaccination or having a severe disease were excluded. Complete medical history was taken including immunization, vitamin A intake (in previous six months) and antihelminths intake; vaccination card was checked to confirm the history. Physical examination was done to check for the signs of acute malnutrition.[15] Anemia was checked on palms i.e. with the comparison of researcher own palms. For children aging more than 6 months, weight & height/length was taken by the researcher/doctor (weight was taken by digital weight machine) and plotted on chart for Z scoring and mid upper arm circumference (MUAC) was also taken, if Z score was <-3 standard deviation and/or MUAC<11.5 cm then the child was labeled to have severe acute malnutrition[15]. In < 6 months old infants only length was taken and plotted on chart for Z scoring, if it was <-3 standard deviation then labeled t have severe acute malnutrition15. Children who took 1 shot of BCG, 4 doses of polio vaccine, 3 doses of pentavalent vaccine, 3 doses of HiB vaccine and 2 shots of measles vaccine were labeled as fully vaccinated, otherwise children with any missed shot were recorded as partially vaccinated, and children who were never received any vaccine were labeled as not vaccinated. All the data was recorded on a pre-designed proforma, which was later extracted for analysis.

RESULTS

Out of 5578 children, 3317 (59.57%) were females while 2261 (40.53%) were males. Mean age of children was 24.78±14.57 months and mean weight of children was 8.67±2.45kg.

Common clinical presentations were cough (37.2%), fever (34.5%) & diarrhea (22.7%) [Table I]. Integrated Management of Childhood (IMC) check-signs regarding immunization status revealed full immunization in 87.9% cases & partial immunization in 5.5% cases. Other check-signs included anemia in 39.7% cases and mebendazole intake in 36.1% cases (Table II).

DISCUSSION

In our study anemia was present in 39.7 % children, 11.1% of children were found to be malnourished, 13.1% children received vitamin A supplement, 87.9% of children took all the vaccines as per EPI schedule while 5.5% were not vaccinated at all, and in anti-helminthic drugs status, only 36.1% children took the medicines.

Findings of our study regarding anemia (39.7%) in children is similar to another Pakistani study showing iron deficiency anemia in 33.2% of young children.[16] While a similar study from India showed iron deficiency anemia prevalence of 49.5% in 6–23-month-old and 39.9% in 24–58-month-old children.[17] It's the dietary issues that are contributing to this diseases in these both countries for having such high a number of anemic children. In a study from Bangladesh, even more high prevalence (51.9%) of anemia was recorded in young children.[18] A study from United States, unlike the studies mentioned above, in 6 to 24 months old and 2-5 years old children showed anemia in 3% and 3.9% children respectively.[19,20] This difference is due to healthy dietary foods and iron fortified cereals in the United States.

In our study, 11.1% of children were found to be malnourished, our results are different from a local study conducted at Sanghar, Sindh, where 66% children were having malnutrition.[21] Another study from Tharparkar showed 33.2% children had malnutrition.[22] This huge difference in the prevalence of malnutrition in these districts may be due to low socioeconomic background and lack of nutritional support in medical facilities and the other possibility is that we have taken only children having severe acute malnutrition in our study. In contrast a study from Dhaka, 46% of the children were underweight.[23] The better nutritional results of our study may be due to the availability of nutritional stabilization center in our region which is delivering the nutritional education, inpatient care, and outdoor therapeutic

foods. An intervention study in Rajasthan India on the impact of nutrition care centers showed a reduction in prevalence of under-nutrition from 66.7% to 59.6%.[24]

Vitamin A deficiency is a major public health problem in low- and middle-income countries, affecting 190 million children under five years of age and leading to many adverse health consequences, including death. World Health Organization (WHO) recommends vitamin A supplementation for children aged 6 to 59 months. A meta-analysis study showed vitamin A reduces overall risk of death and death due to diarrhea by 12%.[25] In a study from United States Vitamin A supplementation was associated with a reduced incidence of diarrhea and measles and a reduced prevalence of vision problems, including night blindness and xerophthalmia.[26]

According to a survey by UNICEF, the prevalence of Vitamin A deficiency in Pakistan, Afghanistan and Bangladesh was 17.7%, 50.4% and 20.5% respectively.[27] In another study there was 24% reduction in morality due to Diarrhea and Measles after vitamin A supplementation.[28] According to IMCI protocol children are enquired about vitamin A supplementation in previous 6 months. In our study only 13.1% children received vitamin A supplement, showing that majority of children were lacking the provision of this supplement. With the proper implication of IMCI check signs 86.9% of children can be picked earlier, who are not getting supplement; hence they can be properly supplemented to decrease morbidity and mortality due to vitamin A deficiency.

Pakistan is struggling for proper vaccinations of children, in 2012–2013, 57.8% children took the complete vaccinations according to EPI schedule.[29] Target of routine immunization coverage should be ≥80%.[30] In our study, 87.9% of children took all the vaccines according to EPI schedule; while, 5.5% were not fully vaccinated. Our study shows high vaccine coverage this may be due to easy access to tertiary health facility, and the application of IMCI program since many years, thus reflecting the IMCI importance. Therefore, IMCI strategy can increase the vaccination coverage.

Worms' infestation in less than 2 years of age children causes reduced food intake, reduced iron status and the onset of iron deficiency anemia, impaired nutritional status, and decreased physical fitness, interference with digestion and absorption and reduced cognitive performance.[15] Worms infestations in children are usually asymptomatic, it is a threat for adults and other contacts. In current study prophylactic anti-helminth drugs were taken by only 36.1% children, so we picked 63.9% of children who did not have prophylaxis drugs for worms. By providing worm prophylaxis drugs to these children, abdominal diseases and cognitive performance of children can be improved. Our results signify the need of screening for anemia and malnutrition, it also emphasis the need of vitamin A and anti-helminths drug history.

This study was conducted at a single center, so further studies should be conducted at other parts of Sindh province or countrywide to validate results of this. Further studies at community level regarding IMCI can also prove fruitful for the masses.

CONCLUSION

In our study most of the children were fully vaccinated, half of the population presented to be anaemic, and only few were malnourished. The study also revealed that about 1/3rd of the children consumed mebendazole and one by seventh of the study population had taken Vitamin A.

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AUTHORS' CONTRIBUTIONS

Following authors have made substantial contributions to the manuscript as under:

MH: Conception and study design, acquisition of data, drafting the manuscript, final approval of the version to be published.

SS & MAS: Acquisition of data, critical review, final approval of the version to be published.

MNC: Analysis and interpretation of data, drafting the manuscript, final approval of the version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

CONFLICT OF INTEREST

Authors declared no conflict of interest

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