ORIGINAL ARTICLE

IMNCI Classification of Measles: Clinical Implementation of Criteria

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ABSTRACT

Aim: To check the feasibility of clinical implementation of IMNCI (Integrated Management of Neonatal and Childhood illness) guidelines of measles to classify measles in children under 5 years of age.
Settings: The study was conducted in Paediatrics Department of Ghurki Trust Teaching Hospital affiliated with Lahore Medical and Dental College
Study design: Prospective observational study
Methods: Total 148 patients of less than 5 years of age with measles were classified according to IMNCI classification into the categories of measles, measles with eye and mouth complications and severe complicated measles. Patients were treated on OPD basis according to IMNCI guidelines but admitted patients were treated according to departmental protocols. Vitamin A was given to every patient with measles.
Results: Results were noted on proforma designed for purpose. We found majority of patients (64.8%) were more than 12 months of age. 14.86% of total patients were labelled as severe complicated measles whereas 43.91% were having measles with eye and mouth complications. Simple measles was seen in 41.23%. We admitted all children with severe complicated measles and few (15.38%) patients of measles with eye and mouth complications were also admitted.
Conclusion: IMNCI measles guidelines are very feasible to apply clinically on measles patients to classify them into three categories. Using these protocols is also helpful in making the decision of indoor admission or send patient home after OPD treatment.
Keywords: IMNCI guidelines, Measles

INTRODUCTION

Measles is common disease of childhood and is responsible for heavy number of hospital admissions. Measles and its complications remain a major cause of under five year mortality and morbidity in our country. According to EPI Pakistan, 300 children died because of measles in 2012[1].

The WHO developed a standard clinical case definition as part of strategies aiming at the prevention of periodic measles outbreaks: `Any person with: generalized maculopapular rash (i.e., non-vesicular) and history of fever of 38°C (101°F) or more (if not measured, "hot" to touch) and at least one of the following: cough, coryza or conjunctivitis (i.e., red eyes)[2].

IMCI guidelines were developed by UNICEF, WHO in 1992 to tackle down under five year mortality, which later on included neonatal guidelines making it present version of IMNCI[3,4]. These guidelines provide very easy and feasible classification of measles targeting on its complications as well though few diagnostic discordance[5]. We can well use these protocols for diagnosis but there is defiantly lack of consensus regarding decision of admission and treatment of measles patients. In recent past, measles outbreaks triggered the need to look into the disease and its diagnosis more vigilantly and timely. IMNCI guidelines have been found to be quite valid in this aspect[6].

In our study we tried to tackle the basic diagnosis of measles and its sub classification into severe complicated measles, measles with eyes and mouth complications and measles using IMNCI protocols and evaluate its clinical implementation value.

METHODOLOGY

This study was conducted in Paediatric department, Ghurki trust teaching hospital, a tertiary care hospital affiliated with Lahore Medical & Dental College. Children between 2 months to 60 months, with clinical diagnosis of measles were included. Their data was entered on the proforma designed for purpose. According to clinical symptoms and IMNCI guidelines, patients were classify into three groups Measles, Measles with eye and mouth complications and severe complicated measles. Measles was defined as presence of fever with maculopapular rash and any one of cough, runny nose or red eyes, now or within last three months. Measles with eye and mouth complications was defined as presence of pus discharge from eyes or superficial oral ulcers or both in addition to sign and symptoms already defined for measles. Severe complicated measles was defined as development of clouding of cornea or deep and extensive mouth ulcers or any of general danger sign (unable to drink or breast feed, vomits everything, has had convulsions, lethargic/unconscious or convulsing now).

Though the study was carried out in tertiary care hospital but we tried to take decision of hospital admission or treatment on OPD basis according to IMNCI guidelines. Departmental protocols were followed to treat indoor admitted patients. Investigations were performed when needed e.g., complete blood count, serum electrolytes and X- ray chest. Cerebrospinal fluid aspiration was performed where indicated. In OPD, oral ulcers were treated with gention violet and conjunctivitis was treated with instillation of chloramphenicol eye drops after cleaning the eyes with normal saline. Vitamin A was given to both outdoor and indoor patients. Dose was adjusted according to age and IMNCI guidelines.

RESULTS

We enrolled 148 patients fulfilling the criteria, between 2 months to 5 years age group. Majority of patients were more than 12 months of age (64.8%). 88(59.4%) patients were males. Measles vaccine was given to 94(63.5%) patients whereas 54(36.48%) were not vaccinated to measles (Table1).

Table 1: Total patients (n=148)

| Age		
2 months to 12 months	56	37.83%
13 months to 60 months	92	64.8%
Gender		
Male	88	59.4%
Female	60	41.3%
Vaccination status		
Measles – 1	48	32.4%
Measles 1 & 2	46	31.8%
Not-vaccinated to measles	54	36.48%

We classify all patents with measles according to IMNCI protocols. It was found that 61(41.23%) were having measles (green colour coding) while 65 (43.91%) were having measles with eye or mouth complications (yellow colour coding). Severe complicated measles was observed in 22(14.86%), a pink colour coding classification (Fig.1). We also observed that among the 22 of patients of severe complicated measles, deep and extensive mouth ulcers were seen in only one patient (4.54%) while one patient showed clouding of cornea (4.54%), rest of 20 (90.9%)

patients showed one or more of general danger sign at the time of classification. "Lethargy" was the sign which was seen in most patient of sever complicated measles which was attributed mainly by pneumonia (70%) or diarrhoea (25%) (common complications of measles) and in one patient (5%) with measles encephalitis. We also found that among total of 65 patients in yellow classification, 33.84% showed eye complication, 46.16% showed mouth complication while 20% showed both eye and mouth complications simultaneously.

Every patient with diagnosis of measles was given one dose of vitamin A (100000 IU for children less than 12 months of age and 200000 IU for children more than 12 months of age) on first visit while second dose was handed over to mother to give on next day at home or was given in hospital in admitted patients. Further treatment of indoor patients was decided according to departmental standards while IMNCI treatment guidelines were followed for patients who were dealt on OPD basis.

We found that IMNCI classification of measles is very practical and easy to assess the severity though few differences were observed while making the decision of admitting and treating the child. Five (7.69%) patients who belonged to clinical category of yellow colour coding, needed evaluation for purulent eye discharge by an eye specialist in our tertiary care hospital. We also admitted 10 (15.38%) patient of same category either for parents satisfaction or where it was difficult for them to bring child after 2 days for early follow up.

Fig. 1 (n=148)
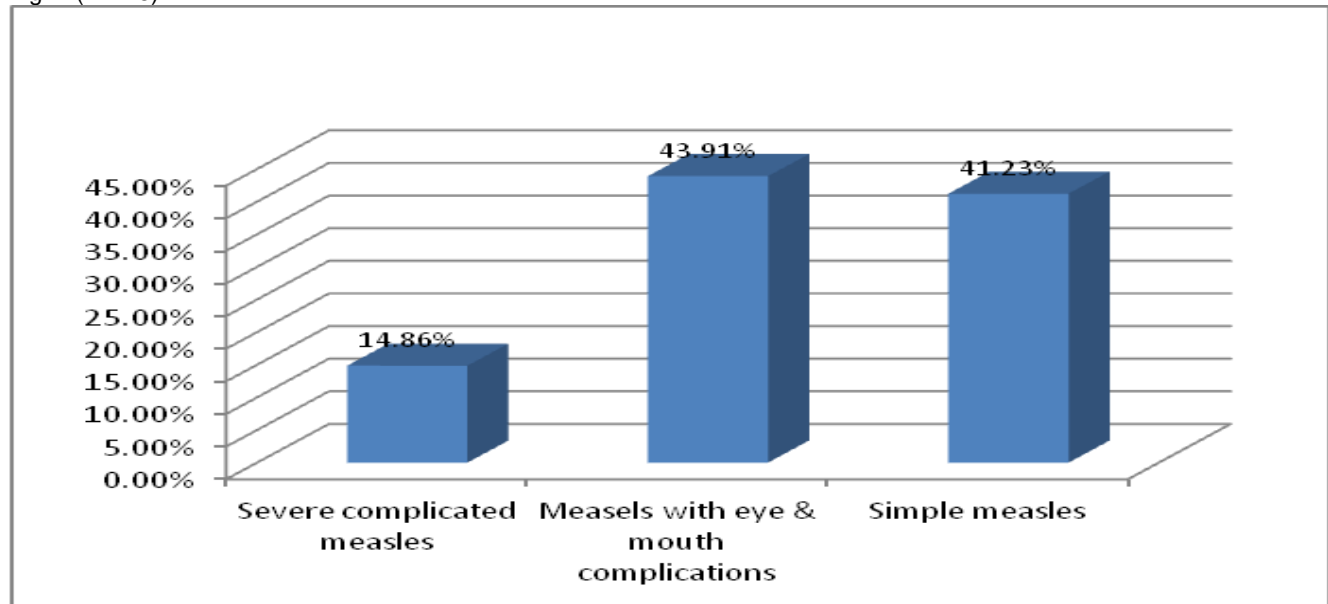
DISCUSSION

In this study, we analyse IMNCI algorithm for classification of measles. We found most of measles cases (65%) were more than 12 months of age. In another study, conducted at Khartoum, median age of measles cases was 24 months, which was more than expected in a developing country setting, where measles usually occurs at a younger age than in developed countries[7].

In 63.5% of children in our study measles vaccine was given according to EPI schedule of Pakistan (either one or two doses) while 36.48% were not vaccinated at all. A study conducted in Karachi, the largest Pakistani city

struck by the measles epidemic, showed the coverage of measles immunization program to be around 90%[8].

In contrast to this, another research showed that in 62% of children the vaccination status for measles was low, especially compared with DTP, polio and BCG (coverage >90%) which is more comparable to our study[7].

We use IMNCI case definition to diagnose and classify the measles patients which was found to be reasonably good, not only to identify case but also the complications which is also found in a local study conducted in Karachi, in which they found the IMNCI case definitions for measles is reasonable but may overestimate measles incidence[7].

An Australian study used notification to a public health unit as the entry criterion and found only 49% sensitivity using the slightly different CDC classification, which is identical to the WHO definition apart from requiring the fever to be >38.3°C and the rash to be present for at least 3 days[9].

Another similar field study found that WHO standard clinical cases definition was designed for maximum sensitivity at the expense of specificity for surveillance purposes and led to a correct diagnosis in 75% of measles cases[7].

According to IMNCI parameters fever is the main symptom which further indicates towards measles and it su-classifications. We found it helpful to use these Indicators to diagnose measles in all of our patients without any delay in diagnosis. Another research carried out to evaluate IMNCI parameters uniformly and results were compared to diagnosis by traditional approach. It was seen that most of children according to the IMCI approach (64%) were classified and diagnosed during the first day, while most of children in traditional approach were diagnosed by the fourth (34%) or fifth day (20%). They also compared treatment and outcome of patients using IMNCI protocols and using traditional approach and found good results in this aspect as well[10].

We sub classify measles according to IMNCI protocols into severe complicated measles (14.86%), measles with eye and mouth complications (43.91%) and measles (41.43%). The major complications seen here were pneumonia and diarrhoea contributing to severe complicated measles. The study conducted in Karachi and Khartoum also found pneumonia and diarrhoea most common complications while other common complications include ear infections, encephalitis, tuberculosis flare up and malnutrition[5,6]. In our study fortunately only 14.86% of patient showed severe complicated measles probably due to introduction of two doses of measles recently while another study found more than 50% of all measles cases were clinically considered severe measles, as defined by the development of complications[6].

Measles outbreaks are still a burning issue in our country despite two doses of measles vaccine. We need to look into the problem and causes of failure of our vaccination programme.

A local review suggests that the outbreaks mainly stemmed from corruption in the health sector which resulted in an ineffective health care system, shortage of vaccinators and low immunization coverage[11].

CONCLUSION

This study concluded that IMNCI classification of measles facilitates the health workers to evaluate the measles patient quickly and helps them to make the decision of admission, referral or send home after initial treatment. It decreased the burden of measles patients from indoor admissions in isolation ward.

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