ORIGINAL ARTICLE

Practical Implementation of IMNCI Protocols in Sick Young Infants (0-2 months) inGhurki Trust Teaching Hospital, Lahore

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ABSTRACT

Aim: To check the practicality and feasibility of IMNCI (Integrated Management of Neonatal and Childhood Illness) protocols, to assess & classify sick young infants (0-2 months) coming to GTTH, Lahore.

Settings: The study was conducted in pediatrics outpatient department & emergency of GTTH (affiliated with Lahore Medical & Dental College)

Study design: Prospective observational study.

Methods: Total 100 patients were assessed and classified according to IMNCI protocols. They were treated according to standard guidelines of pediatric unit. Patients were admitted where needed, according to departmental guidelines which were used as gold standard.

Results: Results were mapped after filling the IMNCI Performa for sick young infants. It was found that IMNCI algorithms are very practical in assessment and classification of very severe disease, local bacterial infection and jaundice in children between 0-7 days of life when compared to gold standard. It was also seen that feeding malpractices and low weight are main issues of concern among the children between 1-2 months of age in the surrounding community. The algorithm identifying bacterial infection are with 75.6% sensitivity and 70.3% specificity while jaundice, diarrhea and feeding problems with 90.3%, 80.1% and 75.4% sensitivity and 60.5%, 77.2% and 82.5% specificity respectively.

Conclusion:IMNCI protocols are very helpful and practical for assessment and classification of sick young infants. Further research on a larger scale is the need of time to calculate credibility and validity of treatment guidelines.

Keywords:IMNCI protocols, sensitivity, young infants

INTRODUCTION

For combating the challenge of under-five mortality, initially IMCI (Integrated Management of Childhood Illness)algorithm was developed by WHO.Early neonatal period (0-7 days)was not included at that time due to programmatic reasons. This algorithm has been adapted to cover the early neonates and is termed Integrated Management of Neonatal and Childhood Illness (IMNCI).Various studies from India and other developing countries have validated the IMNCI algorithm in both 0 – 2 months (including the period of 0-7 days) and 2 months-5 years age groups [1, 2]. However, there is little experience available onthe practical implementation of the algorithm after expanding its scope to include 0-7 days age group. Subsequent to the formal development of the IMNCI algorithm which covers the complete 0-2 month's age group, the present study was planned to validate it in our community.

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METHODOLOGY

Total 100 patients were enrolled for this study of less than 2 months age group coming to OPD or ER of department of Paediatrics. Inborn and outborn children both were added in the list. They were evaluated according to IMNCI guideline and included in study after parent's consent.

We assessed and classified the children according to IMNCI algorithms. Treatment options were also identified as per algorithms but they were treated according to standard protocols of pediatric unit. Patients were admitted or sent home as indicated, according to departmental guidelines which were used as "Gold Standard".Follow up was advised especially to the patients who were treated on OPD basis according to IMNCI guidelines. Dietary counseling was done where the children were found low weight for age. Breast feeding was encouraged by teaching mothers about proper positioning and attachment of young infants. Vaccination advice was given clearly and parents of thechildren with incomplete vaccination were counseled.As the study was performed in tertiary care centre so referral was needed rarely and patients only with pediatric

surgical problems were referred after giving initial medical management.

RESULTS

Total 100 patients were included in this study. All of them were evaluated according to IMNCI protocols and compared to "Departmental Gold Standards". Being the part of integrated program, these patients were also checked for problems other than their main symptoms or complaints. Patients were recruited from emergency and outpatient department.We found that out of total 100 patients, n= 70(70%) came through emergency and they were sick and needed admission while n=30 (30%) came in OPD. 10% of OPD candidates needed admission in hospital. Patients who needed admission were mostly in their early neonatal period (0-7 days). Children in outpatient department mostly came for vaccination though also evaluated for other problems. The illness breakdown with sensitivity & specificity is given in Table 1.

Out of 70 admitted patients, 79.5% improved, 14.2%% died and 7.14% patients left against medical advice or lost in follow up. Mortality was significantly high in early neonates and home delivered young infants. As a part of integration, patients were evaluated for all the "classification checks". 20% of the total patients fulfilled criteria for more than one illness classification. Vaccination was up to date in n=60 (60%) of children. As study was performed in tertiary care hospital so referral was needed in only 2% of total as for pediatric surgical problems.

Table 1:IMNCI Protocols with sensitivity & specificity compared to Gold Standards.

Classification of Disease	n	Sensitivity of IMNCI protocols	Specificity of IMNCI protocols
Very severe disease	30	85.3%	57.25%
Local bacterial infection	2	75.6%	70.3%
Jaundice	20	90.3%	60.5%
Diarrhea	10	80.1%	77.2%
Feeding problem or low weight	15	75.4%	82.5%

During our analysis we found that there were many areas in young infant evaluation which were not focused in IMNCI algorithms while few diseases were over diagnosed. Conditions like nasal blockage, ear infection, breast feeding associated loose stools (which are normal stools consistency in breast fed infants) and surgical problems were not catered at all by IMNCI. We assessed all these problems under the heading of "assess other problem" (n=23). We also found cases of early neonatal sepsis which needed treatment in hospital but lacking assessment by IMNCI protocols. Jaundice and low weight for age were the conditions which were over diagnosed and few cases didn't even needed the treatment though fulfill "pink /yellow classification" criteria.Counseling was needed mainly to correct breast feeding positioning & attachment (54%), incomplete or poor vaccination practices (59%) and treatment of jaundice at home.

DISCUSSION

In this study, IMNCI algorithm identifying bacterial infection are with 75.6% sensitivity and 70.3% specificity while jaundice, diarrhea and feeding problems with 90.3%, 80.1% and 75.4% sensitivity and 60.5%, 77.2% and 82.5% specificity respectively.

In another study, there is only one report available from India assessing possibility of covering 0-7days age group with generic IMNCI algorithm. This study concluded that the performance of WHO IMNCI algorithm is within an 'acceptable range' for both 0-7 days and 7 days – 2 months[3.] The new adapted IMNCI algorithm includes jaundice and yellowness of palms and soles. The sensitivity and specificity of IMNCI algorithm in our study were better as compared to previous study[4], most likely as a result of subsequent modifications done in generic IMNCI algorithm for covering the early neonatal period (0-7 days) in India[5,6].

Although, in one study, the 'Gold Standard' diagnoses were made by pediatric faculty, the researcher filling the IMNCI Performa was not always blinded to these. Thus, a possibility of bias may be present. Further, the study was done in a tertiary health care facility catering to patients who are sicker and also more patients were recruited from emergency room. The usefulness of the algorithm in the community setting may be altered due to variety of sick babies[7].

In retrospective study from Egypt (in 213 districts), estimated annual rate of decline in under-five mortality was 3.3% before IMCI implementation and 6.3% after IMCI implementation (P<0.01). In 127 districts between 2002 to 2005, annual decline of under-five mortality was 2.6% before IMCI implementation and 7.3% after implementation with significant difference (p<0.01)[8]. So this study shows that IMCI implementation in Egypt was associated with a doubling in mortality reduction (3.3% vs. 6.3%).This study is comparable to the study in Tanzania[9]while in Brazil & Peru[10,11]. IMCI implementation was weak & there was no evidence of an impact on mortality.In Bangladesh, there is also reduction in under-five mortality[12].

WHO & UNICEF research and data collected in Egypt in 2006was estimated at 90%reduction of Mortality after IMCI implementation and is comparable by WHO study done in 2010 duration[13,14].

CONCLUSION

IMNCI protocols are very helpful and practical in assessment and classification of sick young infants. Further research on a larger scale is the need of time to assess credibility and validity of treatment guidelines.

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