Journal of Advanced Medical and Dental Sciences Research

@Society of Scientific Research and Studies ***NLM ID:*** *101716117*

Journal home page: www.jamdsr.com doi: 10.21276/jamdsr Index Copernicus value = 85.10

(e) ISSN Online: 2321-9599; (p) ISSN Print: 2348-6805

Original Research

Clinical profile of acute systemic infections in children aged between 1 to 14 years attending the tertiary care hospital MKCG Medical College

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ABSTRACT:
Background: Almost two-thirds (64%) of infections in children are caused by infectious diseases. The present study was conducted to assess acute systemic infection in children. **Materials & Methods:** 128 children age ranged 1- 14 years of both genders were recruited. Standard diagnostic criteria for respiratory tract infection, Diarrhea, Tuberculosis, Urinary tract infection, Malaria, Enteric fever, Measles, Parasitic infections was followed for all children. **Results:** Age group 1-3 years had 12 boys and 8 females, 4-6 years had 18 boys and 19 girls, 7-10 years had 27 males and 21 females and 11-14 years had 13 males and 10 females. The most commonly occurring infection was ARI diagnosed in 28 followed by diarrhea in 25, typhoid fever in 19, UTI in 15, malaria in 8, measles in 5 , Parasitic infections in 6, meningitis in 12 and tuberculosis in 10, patients. Maximum cases were seen in age group 7-10 years (48), 4-6 years (37), 11-14 years (23) and 1-3 years (20). The difference was significant ($P< 0.05$).**Conclusion:** Commonly occurring infection was ARI, diarrhea, typhoid fever, UTI , malaria, measles, Parasitic infections and tuberculosis.
Key words: Children, infections, systemic

Received: October 25, 2020 Accepted: November 27, 2020

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This article may be cited as: Panda S, Rao BM, Sahu M, Panda A. Clinical profile of acute systemic infections in children aged between 1 to 14 years attending the tertiary care hospital MKCG Medical college. J Adv Med Dent Scie Res 2020;8(12):166-169.

INTRODUCTION

Almost two-thirds (64%) of infections in children are caused by infectious diseases. Worldwide, the leading causes of death among children under-5 is acute systemic infections. India has highest number of child births as well as under-5 deaths. that include pneumonia (13%), preterm birth complication (24%), diarrhea (10%), intra-partum related complications (11%), malaria (1%), measles (3%), Meningitis(2%).[1] Over 3.1 million children under five years of age die in South East Asia Region. India contributes to 20% out of the 5.9 million underfive deaths occurring worldwide every year.There has been a steady decline in child deaths in India over the years. Most of children attending pediatrics department are for various systemic infections.[2]

Acute respiratory tract infections (ARTIs) are the most common cause of childhood morbidity and mortality worldwide, accounting for about 30% of all childhood deaths in the developing world. The WHO estimates that ARTIs account for 1.9 to 2.2 million childhood deaths annually, with 42% occurring in Africa.[3]The etiologic agents include viruses, bacteria, and fungi. Among the viruses responsible for ARTIs are RSV virus and members of the Orthomyxoviridae, Coronaviridae, Picornaviridae, Paramyxoviridae,

Adenoviridae and Parvoviridae. Bacteria, such as Streptococcus *pneumoniae* (S. pneumoniae), Haemophilusinfluenzae, Staphylococcus *aureus*, Moraxella *catarrhalis*, Mycoplasma *pneumoniae* (M. pneumoniae), and Chlamydia *pneumoniae* are the most common involved microbes.[4] The advent of modern sanitation and hygiene practices, effective vaccines, and antibiotics have significantly diminished the burden in the developed world, but infectious diseases remain the most common cause of death worldwide.[5] India is going through a period of transition, both epidemiological and demographic transition. Infectious diseases are still persisting as major health problems in spite of having national programmes for the control of most of these diseases for almost half a century now. There are re-emerging infectious diseases which are adding to the burden of diseases.[6]The present study was conducted to assess acute systemic infection inchildren in our medical college catering pediatrics patients coming from adjacent districts of southern Odisha.

MATERIALS & METHODS

The present study was conducted among 128 children age ranged 1- 14 years of both genders in the department of Pediatrics, MKCG Medical College, Berhampur, Ganjam. The study period was February 2017- July 2017. It was a prospective observational study conducted after approval of Institutional Ethics Committee. Parents were informed regarding the study and their informed consent was obtained. Convenient sampling procedure was followed.

Data such as name, age, gender etc. was recorded. Standard diagnostic criteria for respiratory tract infection, Diarrhea, Tuberculosis, Urinary tract infection, Malaria, Enteric fever, Meningitis , Measles, Parasitic infections was followed for all children. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Age group (Years)	Boys	Girls
1-3	12	8
4-6	18	19
7-10	27	21
11-14	13	10
Total	70	58

Table I, graph I shows that age group 1-3 years had 12 boys and 8 females, 4-6 years had 18 boys and 19 girls, 7-10 years had 27 males and 21 females and 11-14 years had 13 males and 10 females.

Graph I: Distribution of patients

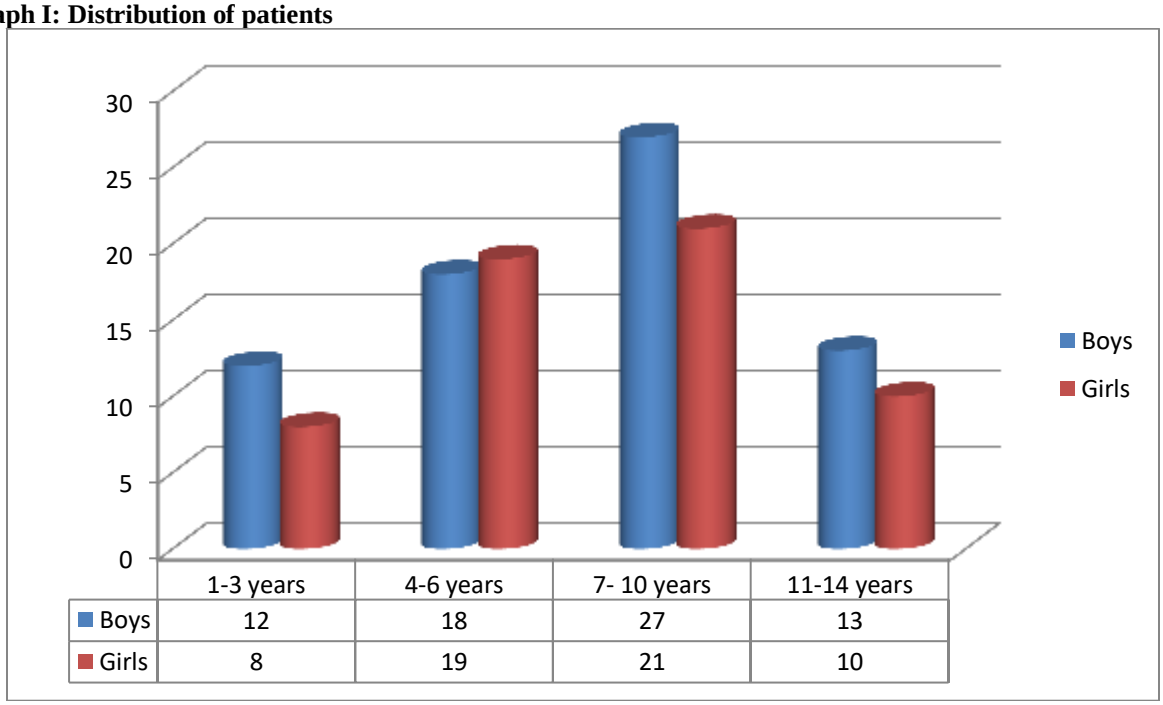
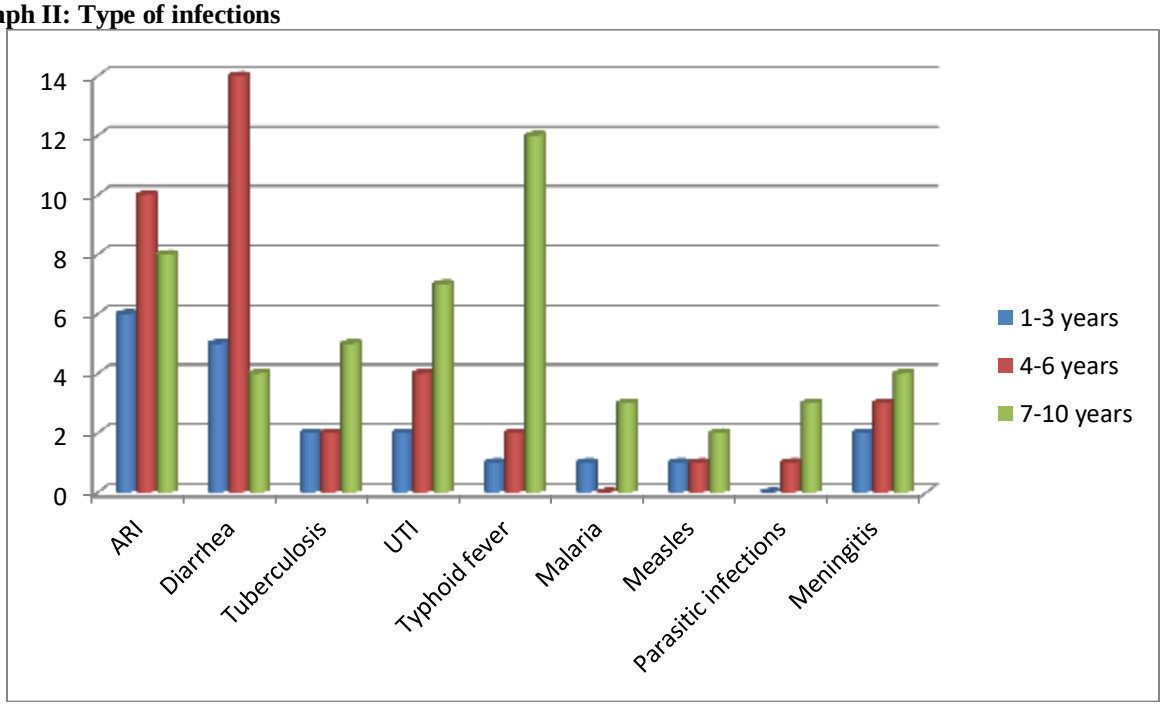


Table II Type of infections

Infections	1-3	4-6	7-10	11-14	Total
ARI	6	10	8	4	28
Diarrhea	5	14	4	2	25
Tuberculosis	2	2	5	1	10
UTI	2	4	7	2	15
Typhoid fever	1	2	12	4	19
Malaria	1	0	3	4	8
Measles	1	1	2	1	5
Parasitic infections	0	1	3	2	6
Meningitis	2	3	4	3	12
Total	20	37	48	23	128

Table II, graph II shows that most commonly occurring infections was ARI in 28 followed by diarrhea in 25 typhoid fever in 19, , malaria in 8, measles in 5, UTI in 15,Meningitis in 12 .Parasitic infections in 5 and tuberculosis in 10 patients. Maximum cases were seen in age group 7-10 years (48), 4-6 years (37), 11-14 years (23) and 1-3 years (20). The difference was significant (P< 0.05).

Graph II: Type of infections



DISCUSSION

There is an increasing prevalence of non-communicable diseases as a result of lifestyle changes and urbanization.[7,8] Infectious causes predominate in younger age groups. These are the challenges that are to be tackled in the coming years to achieve national goals. Understanding the causes of child mortality provides important public health insights. Globally 5.9 million deaths in children under-5 occurred in 2015 and India was major contributor.[9,10]The present study was conducted to assess acute systemic infection in children. In present study, age group 1-3 years had 12 boys and 8 females, 4-6 years had 18 boys and 19 girls, 7-10 years had 27 males and 21 females and 11-14 years had 13 males and 10 females. . Maximum cases were seen in age group 7-10 years (48), 4-6 years (37), 11-14 years (23) and 1-3 years (20). We observed in our study that most commonly occurring infection was acute respiratory infections in 28 followed by diarrhoea in 25, Typhoid in 19, malaria in 8, measles in 5, UTI in 15, Meningitis in 12 , Parasitic infections in 6 and tuberculosis in 10 patients..Saikiaet al[13] assessed the pattern of some common infections in children one month to five years of age among 368 randomly selected children. Respiratory tract infection and Diarrhea occurred most frequently in 7 to 24 month of

child. Lack of breastfeeding practices and delay in introducing complimentary feeding might be major attributing factors. Similar outcomes were seen in other studies with more children had ARI and diarrhoeal diseases in less than 5 year age group.[14] Urinary tract infections, Typhoid fever are mostly seen in 7-10 year age group children. Tubercular infections were also in increasing trend in all age groups due to parents being not fully aware of chronic nature of the disease.[11] .

Brini et al[14] identified a broad spectrum of respiratory pathogens from hospitalized and not-preselected children with acute respiratory tract infections in samples from 372 children aged between 1 month and 5 years were collected, and tested using multiplex real-time RT-PCR. The viral distribution and its association with clinical symptoms were statistically analyzed. Viral pathogens were detected in 342 of the Children in the youngest age group (1–3 months) exhibited the highest frequencies of infection. Related to their frequency of detection, RSV A/B was the most associated pathogen with patient's demographic situation. Respiratory tract infection occurred mostly in winter season. Typhoid fever seen to be increased in 7-10 year age group children due to their poor hand washing habits.[6,7,8]Prevalence of Sickle Cell Disease cases in our area might be attributing to increased cases of Typhoid fever. Most common infections in children 1 year to 5 years of age was Respiratory tract infection followed by diarrhea, enteric fever, malaria, tuberculosis, urinary tract infection, meningitis , parasitic infection and measles Acute bacterial meningitis was diagnosed in 12 number of cases which indicated serious systemic infection .Stool examination in Parasitic infestation showed that Amoeba 1 , Giardia 1 , Ascariasis 1 , and Hookworms in 3 and a total of 6 cases.[61] Anemia was present in URI, Tuberculosis, Malaria, and Parasitic infestation.[12] Urinary tract infection appeared to be common systemic infection in all age groups. Overuse and incorrect dosing of antibiotics in pediatrics population added to the burden.[8] Tubercular infections in form of milliary tb, pleural effusion, tb lymphadenitis and CNS tb were exhibited by all age group of children.[11] Underlying malnutrition and recurrent diarrhoeal episodes lead to more severe forms at presentation. Measles infection was diagnosed in 5 number of cases and all were measles complications.. Due to good coverage of measles and measles containing vaccines in our national immunisation schedule there was decrease in cases.

The shortcoming of the study is small sample size.

CONCLUSION

Our study found that commonly occurring systemic infections was ARI, diarrhoea, typhoid fever, UTI, malaria, measles, tuberculosis and Parasitic infections. Many of such diseases can be well reduced by enhancing immunization practices, hand washing, safe drinking water supply and addressing balanced nutrition in children. Exclusive breast feeding and timely initiation of complimentary feeding must be advocated. Routine immunization practices to adhere strictly.

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