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Original Research Paper

Opthalmology

A RETROSPECTIVE ANALYSIS OF OPHTHALMOLOGY IN-PATIENT CALL OVERS FROM PAEDIATRICS IN TERTIARY CARE CENTRE FOR A PERIOD OF ONE YEAR

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ABSTRACT

INTRODUCTION : Ophthalmology consultation requests from paediatric inpatients are considered important as it can aid in diagnosis and timely management of the disease.

OBJECTIVE : Objective was to analyse the reasons for paediatric call overs and relevance of ophthalmology consultations in paediatrics

METHODOLOGY : This was a retrospective study conducted at ophthalmology department of Stanley Medical College, Chennai. Study duration was 1 year. All paediatric in-patient ophthalmology call overs were included from neonatal age till 12 years of age excluding call overs for Retinopathy of prematurity.

RESULTS : In this study of 150 call overs received, 42% of the call overs were from 1 – 5 years of age, 39% from >5 years age and 19% from <1 years of age. In children < I year and 1 – 5 years, most common cause for call overs were to rule out papilloedema in seizure patients, followed by acute CNS infections. In children above 5 years, secondary hypertention was a major cause for call overs sent. These cases were noted to have grade 4 hypertensive changes. Cause for secondary hypertention in most cases were renal related – Acute glomerullo nephritis and CKD and the other reasons being systemic vasculitis.

CONCLUSION : Various stages of papilleodema was the significant ophthalmological finding in the call overs, followed by hypertensive retinopathy. In both cases, the finding aided in diagnosis, investigative procedures and treatment of disease conditions.

KEYWORDS : Ophthalmology, paediatric call-overs, inpatient, papilledema, hypertensive retinopathy

INTRODUCTION

Ophthalmology consultation requests from paediatric inpatients are common referrals for opinion/advice in a tertiary care centres and they are considered important as it can aid in diagnosis and timely management of the disease in the children who are admitted.

Many of the times, inpatients are not mobile as they have indwelling vascular lines and cathers. Some patients are on ventilator or have altered mental status (comatose or semicomatose) who needs constant observation and ICU care and some are not medically fit to be transported to the ophthalmology clinic. For these patients although limited ophthalmic examination can be done by the bedside, they have significant role in diagnosis & further management . Majority of diseases of inpatient paediatric group are systemic, and ophthalmology consultation is sought to aid in their diagnosis/determine severity of those diseases, as in cases of meningitis/encephalitis having raised intracranial tension causing papilloedema, cases of secondary hypertension causing retinopathy changes in fundus, congenital storage disorders etc

OBJECTIVE

Objective was to analyse the various causes for in-patient call overs to ophthalmology from paediatrics and relevance of ophthalmology consultations in paediatric cases.

METHODOLOGY

This was a retrospective study conducted at ophthalmology department of Stanley Medical College, Chennai. Study was conducted for a period of 1 year. All paediatric in-patient ophthalmology call overs were included from newborns to 12 years of age excluding ROP (Retinopathy Of Prematurity). The study population was categorised according to the age groups as <1 year, 1-5years and > 5 years. The reasons for the call overs were categorised for each age group, and major causes and ophthalmological findings were recorded.

RESULTS

In this study of 150 cases , the call overs from different age groups were - 42% from 1 – 5 years of age followed by 39% from >5 years age and 19% from <1 years of age. 43% of the total call overs were sent to rule out papilleodema in seizure patients before doing a lumbar puncture, followed by acute CNS infections which was 14%, remaining 43% were call overs for miscellaneous cases.

Papilloedema and hypertensive retinopathy were the significant ophthalmological findings noted . Causes of papilloedema differed in each age group. In <1 year and children between 1 – 5 years, acute CNS infection was the major cause of papilloedema which was 17 % and 10 % respectively. In children above 5 yrs, 19% of call overs were for acute CNS infections of which 27% had papilloedema. 12% call overs were for secondary hypertension. Among these, 71% had various grades of hypertensive retinopathy. Causes for secondary hypertention were renal related – Acute glomerulonephritis and CKD and systemic vasculitis. Other significant finding in this age group was Bull's eye maculopathy in chloroquine toxicity in a child treated for cerebral malaria.

Table 1 : Causes for which ophthalmology call overs were given in different age groups

CAUSES	PERCENTAGE		
	<1yr	1 – 5 years	>5yrs
Seizure	54	63	49
Acute CNS infections	18	21	18
Secondary hypertension	-	-	13

Others	28(late onset sepsis,failure to thrive, bacterial conjunctivitis)	16(cerebral palsy, hydrocephalus, nephrotic syndrome, acute diarrhoeal disease, trauma, mucopolysaccharadosis, DKA)	20 (chloroquine toxicity, jaundice, viral pneumonia, SLE,trauma)

Table 2 : Significant ophthalmological findings in each age group

SIGNIFICANT FINDINGS	PERCENTAGE		
	<1yr	1 – 5 years	>5yrs
Seizure	NIL	NIL	NIL
Acute CNS infections	Papilloedema – 11%	Papilloedema – 29%	Papilloedema – 36%
Secondary hypertension	-	-	Hypertensive retinopathy – 38%
Others	-	Papilloedema – 13%	Bull's eye maculopathy – 5%

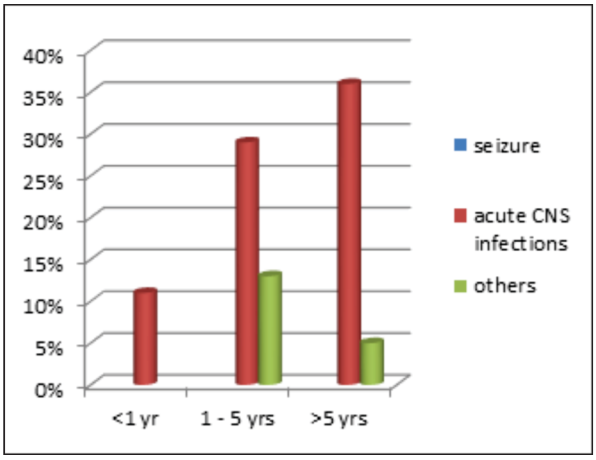

Fig 1 – Causes of papilloedema in different age groups

DISCUSSION:

Disc swelling in both eyes is an important clinical sign that could indicate the presence of a variety of inflammatory, infectious, toxic, metabolic, genetic, or vascular conditions, such as hypertension **[1]**. In our study the major causes of papilloedema was found to be CNS infections and vascular condition which was hypertension.

While primary hypertension is a common condition in adults, the pediatric equivalent is less common [2]. Mere presence of papilloedema in paediatrice age group may not raise a suspicion of hypertension unless accompanied by florid signs of hypertensive retinopathy like macular star or frank evidence of end-organ damage, [3,4]. While hypertensive crisis may be a result of primary hypertension, secondary causes are most often found in pediatric patients with hypertensive crisis [5]. Renal diseases and many of the methods of managing it can additionally lead to papilloedema in the paediatric patient, with renal insufficiency, chronic dialysis, and steroid treatments all potentially contributing to elevated ICP [6]. Presence of papilloedema in patients with hypertension gives a clue towards ongoing end organ damage. Optic disc edema in malignant hypertension is, generally, a sign of ischemia, paediatricians should be cautious in treating such cases as rapid reduction of high blood pressure may lead to optic atrophy and permanent vision loss [7].

Central nervous system infections cause significant mortality and neurological morbidity in paediatric patients. Children with CNS infections may present with various syndromes like acute meningitis syndrome , acute encephalitis syndrome , subacute or chronic meningitis syndrome, encephalopathy with systemic infections where CNS is involved as a part of systemic infection, and postinfectious syndromes. The common life-threatening complications associated with acute CNS infections are status epilepticus (SE), raised intracranial pressure (ICP), focal deficits, shock, disseminated intravascular coagulation (DIC), respiratory failure, and fluid and electrolyte abnormalities [8]. Acute CNS infection leads to raised ICT due to inflammation of arachanoid villi leading to reduced absorption of CSF & inflammation of cerebral and meningeal vessels leading to vasodilatation resulting in increased production of CSF. From our study it was evident that ophthalmological examination of children with acute CNS infection, help in early identification of life threatening complications by the presence of papilloedema , a sign of raised intracranial pressure which warrants urgent intensive care and treatment which is crucial for improving the outcome of CNS infections [9]. In a suspected central nervous system infection of children lumbar puncture is an indispensable and emergent tool in the diagnosis of meningitis [10] . Cerebral herniation is a life threatening complication of lumbar puncture in children with elevated ICP. Presence of papilloedema is one of the clinical sign of raised ICP and is an absolute contraindication for lumbar puncture [11]. Hence children with papilloedema should not undergo LP until imaging establishes that the procedure can be safely performed [12]. This warrants necessity of ophthalmic evaluation in suspected CNS infection in paediatric age group.

CONCLUSION

Clinical assessment including ophthalmological evaluation is important for early diagnosis & timely detection of life threatening complications.

Acute CNS infections in children is a medical emergency as it has high mortality and morbidity associated with it and requires a high index of suspicion for diagnosis.

Secondary hypertension is an important entity to be considered in peadiatric patients. Screening for papillodema in hypertensive children can aid in forming treatment protocols.

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