Pediatric eye diseases among children attending outpatient eye department of Tikrit Teaching Hospital

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Abstract

Pediatric ophthalmic disorders are important because of their impact on child's development, education, future work, opportunities and quality of life, they may be due to causes that operate in prenatal period , neonatal period and childhood. This study aimed to determine the pattern of childhood eye diseases across age group among children attending out Patient eye department of Tikrit Teaching Hospital. It is a descriptive cross sectional study carried out in out Patient eye department of Tikrit Teaching Hospital .From 1st January 2010 to the end of December 2010.In this study 846 children at the ages up to 15 years were examined. A questionnaire was designed for recording personal history and detailed ocular clinical examination was done. A total of 846 children had attended the eye out patient during 2010.469(55.4%) were male and 377(44.5%) were female. Allergic conjunctivitis 229(27%),refractive error 124(14.6%), Ocular trauma 117(13.8%),infection108(12.7%),squint103(12.1%) and NLD obstruction 44(5.2%) were the most common conditions. Ocular injury was more common in males 67% and children aged 6-10 years 40%, the majority 65% being closed globe injury. Infections were seen more commonly among males 61% and children aged less than 5 years, with keratitis representing 33% of these cases. Conjunctivitis was the most common disorder followed by refractive error. Male were more commonly affected than female. Children aged 11-15 years made up largest group that affected. The prevalent childhood eye diseases can lead to absenteeism from school and are potentially blinding. Health education is important for parents to prevention of childhood eye injuries and early treatment of eye disorders.

أمراض عيون الأطفال بين الأطفال الذين يراجعون العيادة الخارجية للعيون في مستشفى تكريت التعليمي

مروان صلاح سلمان

المستخلص

المقدمة : اضطرابات الأطفال البصريات مهمة بسبب تأثيرها على تنمية الطفل وتعليمه وفرص عمله في المستقبل ونوعية حياته ، وأنها قد تكون نتيجة لأسباب في فترة ما قبل الولادة وفترة الولادة والطفولة. الهدف : هدفت هذه الدراسة إلى تحديد نمط أمراض عيون الأطفال عبر الفئة العمرية بين الأطفال الذين يراجعون مستشفى تكريت التعليمي. المواد والأساليب : إنها دراسة وصفية مقطعية أجريت في عيادة العيون الخارجية في مستشفى تكريت التعليمي في الفترة من ١ يناير ٢٠١٠ حتى نهاية ديسمبر ٢٠١٠.في هذه الدراسة ٨٤٦ طفلا في سن تصل إلى ١٥ عاما قد تم فحصهم. وقد تم تصميم استبيان لتسجيل التاريخ الشخصي للمرض وقد تم فحص سريري مفصل للعيون . النتائج : ما مجموعه ٨٤٦ طفلا كان عدد المراجعين إلى عيادة العيون الخارجية في مستشفى تكريت التعليمي خلال ٢٠١٠. ٤٦٩ (٥٥,٤ ٪) من الذكور و ٣٧٧ (٤٤,٥ ٪) من الإناث. حساسية الملتحمة ٢٢٩ (٢٧ ٪) ،الأخطاء الانكسارية١٢٤(١٤,٦ ٪) ، إصابات العين ١١٧ (١٣,٨ ٪) ، التهابات العين ١٠٨ (١٢,٧ ٪) , الحول (١٢,١ ٪) ، انسداد مجرى الدمع ٤٤ (٥,٢ ٪) هذه الأمراض كانت هي الأكثر شيوعا. إصابات العين أكثر شيوعا في الذكور ٦٧ ٪ والأطفال الذين تتراوح أعمارهم بين ٦-١٠ سنوات ٤٠ ٪ ، والأغلبية ٦٥ ٪ تشكل الإصابات المغلقة . وشوهدت التهابات العين أكثر شيوعا بين الذكور ٦١ ٪ والأطفال الذين تقل أعمارهم عن ٥ سنوات ، مع التهاب القرنية الذي يمثل ٣٣ ٪ من هذه الحالات. الاستنتاج: حساسية الملتحمة هي الأكثر

شيوعا تعقبها الأخطاء الأنكسارية تتأثر الذكور أكثر من الإناث. الأطفال الذين تتراوح أعمارهم بين ١١-١٥ سنة هي المجموعة الأكبر التي تأثرت. أمراض العيون في مرحلة الطفولة يمكن أن تؤدي إلى التغيب عن المدرسة ويحتمل أن تسبب العمى. التوعية الصحية مهمة للآباء والأمهات لوقاية أطفالهم من إصابات العين في مرحلة الطفولة وعلاج اضطرابات العين.

Introduction

pediatric ophthalmic disorders are so important because of their impact on child's development, education, future work, opportunities and quality of life. Pediatric ophthalmic disorders may be due to causes that operate in prenatal period , neonatal period and childhood. The site of the lesion can be in the orbit ,eyelid ,whole globe, conjunctiva, cornea, sclera, lens, vitreous, retina, uvea ,optic nerve and refractive system ,(1). Strategies to manage pediatric ophthalmic disorder include intervention at all three levels primary, secondary and tertiary prevention. possible measures include optical, orthoptic, medical and surgical intervention. Globally about 70 million blind years are caused by childhood blindness. Approximately 500,000 children becoming blind every year, one every minute and half of them die within one to two years of becoming blind. Eye diseases in children are important cause of medical consultation,(2). Children should recieve prompt and proper eye care in order to avoid vision problems and eye morbidities, which could effect their learning ability ,personality and adjacement in school,(3). In the united states, strabismus, amblyopia and optical problems impacting visual acuity are the most common ocular problems seen among school aged children,(4). Children have unique problems in terms of ocular morbidities, not only due to their inability to articulate their problems, but also because of the potential to develop amblyopia in the event of visual impairment ,(5). There are about 1.5 million blind children in the world and more than one million children in Asia alone,(6,7). Refractive error(25.7%),vernal conjunctivitis (25.3%),eye injuries(13.3) and corneal inflammation (12.5%) were the leading causes of childhood eye morbidity in Nigeria,(8). The aim of this study is to determine the pattern of childhood eye disorders across age groups in children attending out patient eye department of Tikrit Teaching Hospital.

Patients and methods

Hospital based descriptive cross sectional study was done in out patient eye department of Tikrit Teaching Hospital from 1st January 2010 to the end of December 2010. In this study 846 children in the age group up to 15 years were included. Children above 15 years and those presented for a medical check-up and had no eye disorders were excluded from study. A questionnaire was designed to include disorders of conjunctiva, cornea, sclera, lens, uvea, retina, optic nerve, ocular muscles, nasolacrimal duct system, lids, orbit and refractive system .Detailed ocular examination was done for diagnostic purpose .Refraction was performed routinely under cycloplegia. Anterior segment examination was done with slitlamp ,binocular loup and torch. Posterior segment examination was performed after dilating pupil using direct and indirect ophthalmoscope and fundus examination . intraocular pressure was checked with applanation tonometer and shiotz tonometer. squint assessment was done using prisms . Consultation to pediatricians and other specialist were made when it was necessary. An examination under anesthesia was carried out to confirm a diagnosis when required. Diseases presented at birth but not due to birth circumstances were considered congenital. Patients were grouped by age into preschool(< 5 years), school-age(6-10 years) or older children (11-15 years) group. Statistical analysis using SPSS. P value less

than 0.05 was considered statistically significant .

Results

846 children were seen in the ophthalmic department during the study period.There were 377 (44.5%) females and 469(55.4%) males, resulting in female to male ratio1:1.2.Table1 and Figure1 show the age group and sex distribution of children. The highest frequency of consultation was recorded among older children ,constituting 39.2% of the patients . Table 2 and Figure2 show Allergic conjunctivitis was the most common disorder accounting for 27.0% of the cases, male preponderance70.7% and higher incidence noted among older children 11-15 years constitute 50.2%.Refractive errors accounted for 14.6%,male preponderance 67% and higher incidence noted among older children 6-10 years constitute 66%.Ocular trauma accountedfor13.8%,male preponderance 67% and higher incidence noted among school age children 78%.ocular infection accounted for 12.7%,male 52% were predominantly affected and higher incidence noted among those less than 5 years 52%. Squint were seen in 12% ,male were predominantly affected 57% and the higher incidence noted among those less than 5 years 36%; convergent squint constitute 62%,divergent squint 37% and oblique squint 1%.Amblyopia constitute 40% of the cases 83% with esotropia and 17% with exotropia. NLD obstruction contribute 5.2%, male 34%were predominantly affected and higher incidence noted among those less than 5 years 64%.Uveitis accounted for 3.3%,male 46% were predominantly affected and higher incidence noted among those 11-15 years 89%.Cataract accounted for 2.2%,female 58% were predominantly affected and higher incidence noted among those less than 5 years 68%. Retinal disorders accounted for 2.6%, male 55% were predominantly affected and higher incidence noted among those less than 5 years 82%;retinal detachment accounted for the majority of the cases 14 cases 64%, retinoplastoma 4cases 18%, persistent hyperplastic primary vitreous 3 cases 14% and retinopathy of prematurity 1case 4%. Glaucoma accounted for 1.7%, male 67% were predominantly affected and higher incidence noted among those less than 5 years 73%. The difference in presentation by age group was more prominent and statistically significant among children with allergic conjunctivitis, refractive errors, trauma, infection, squint, NLD obstruction,($P < 0.05$). While the Pattern of ocular injury in 117 children include children with ocular injury , 78(67%) were boys. The higher incidence noted among school aged children, constituted 78%.Eye injury was unilateral in all cases. Table 3 and Figure3 show the pattern of ocular trauma seen in the 117 children, with the majority (65%) being closed globe injury. Traumatic hyphaemia was recorded in 11(18.6) of the 59 children who presented with contusive eye injury. However, the children who presented with infections,56 (52%) were male. The higher incidence noted among those less than 5 years 56(52%).Table4 and Figure4 show the type of ocular infection seen in the 108 children, keratitis accounted for 33%,conjunctivitis 26%,blepharitis 19%,orbital cellulitis 6%,preseptal cellulitis5%,stye 4% and dacryocystitis 7%.The main cause of keratitis was herpes simplex constitute 36%,measles with suppurative keratitis 28%,vernal ulcer 25% and bacterial keratitis 11%.

Table (1):- Age group & sex distribution in children

Age group	Male	Female	Total
< 5 years	153	125	278
6-10 years	139	97	236
11-15 years	177	155	332
Total	469	377	846

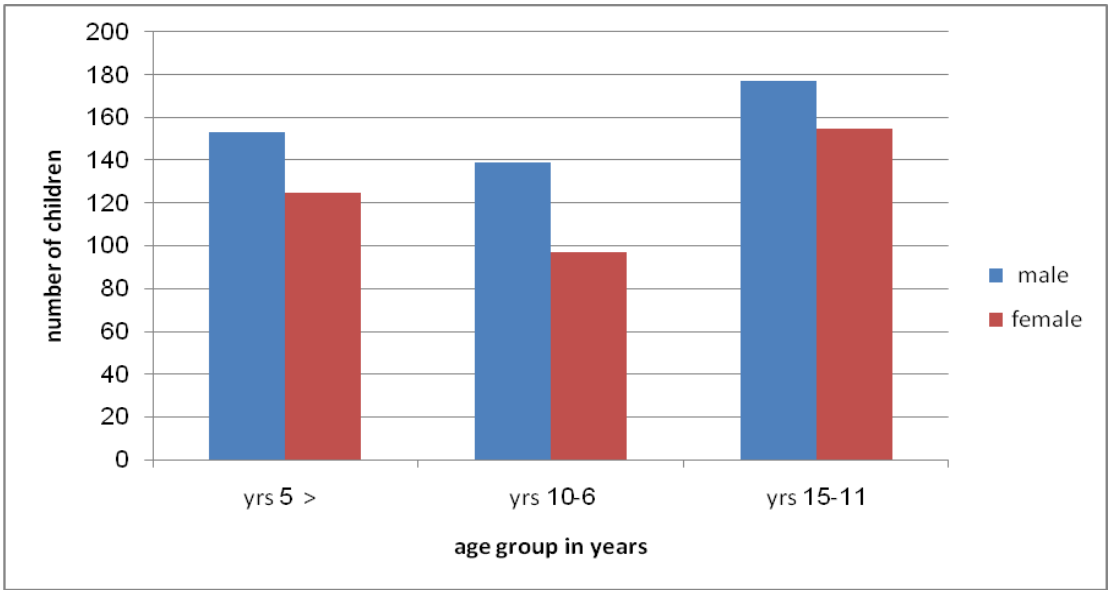

Fig (1):- Age group and sex distribution in children

Table (2):- Distribution of childhood eye diseases across age group

Diagnosis	Age group in years			
	< 5 yrs(%)	6-10 yrs(%)	11-15 yrs(%)	Total(%)
Vernal conjunctivitis	58(25.3)	56(24.4)	115(50.2)	229(27)
Refractive error	13(10.4)	29(23.3)	82(66.1)	124(14.6)
Trauma	26(22.2)	47(40.1)	44(37.6)	117(13.8)
Infection	56(51.8)	32(29.6)	20(18.5)	108(12.7)
Squint	37(35.9)	41(39.8)	25(24.2)	103(12.1)
NLD obstruction	28(63.6)	11(25)	5(11.3)	44(5.2)
Uveitis	2(7.1)	1(3.5)	25(89.2)	28(3.3)
Vitreous and retina	18(81.8)	4(18.1)		22(2.6)
Cataract	13(68.4)	3(15.7)	3(15.7)	19(2.2)
Glaucoma	11(73.3)	2(13.3)	2(13.3)	15(1.7)
Others	16(43.2)	10(27)	11(29.7)	37(4.3)
Total	278(32.8)	236(27.8)	332(39.2)	846(100)

Chisquare 121 **P < 0.05**

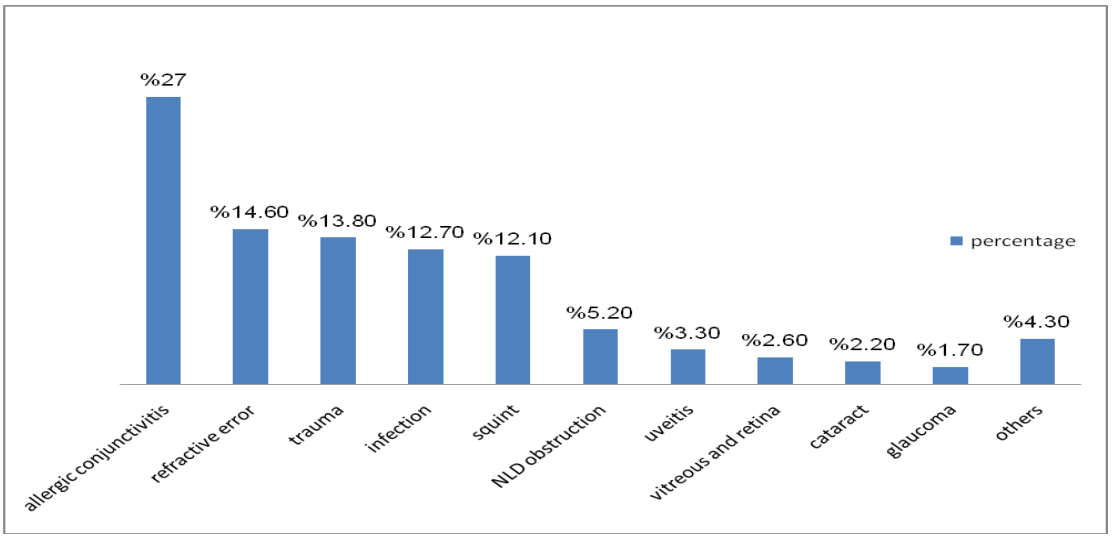

Fig. (2):-Distribution of childhood eye diseases across age group

Table (3):- Pattern of ocular injury in 117 children

Types of injuries		Number	Percentage%
Closed globe injury	Contusion	59	50
	Superficial corneal FB	15	13
	Superficial conjunctival FB	2	2
Open globe injury	Penetrating injury	22	19
Others	Lid wound	15	13
	Chemical injury	4	3
Total		117	100%

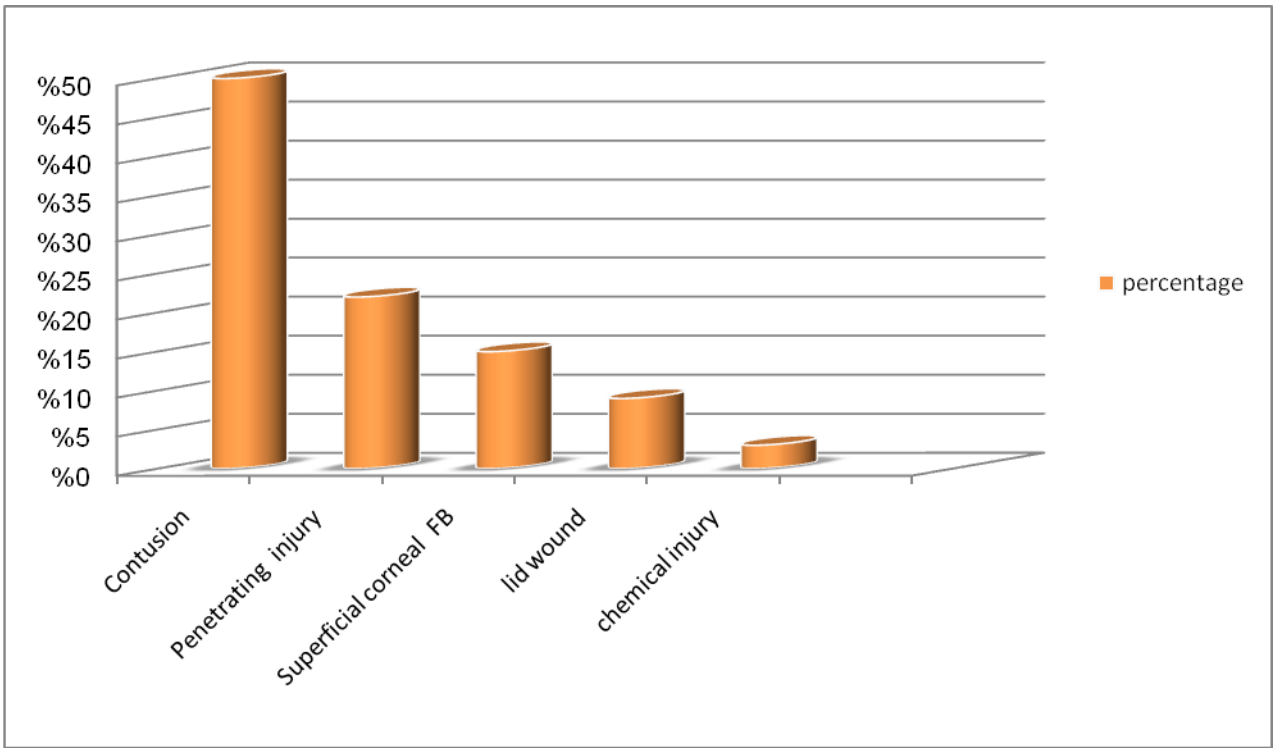

Fig. (3):- Pattern of ocular injury in 117 children

Table (4):- Types of childhood infections of the eye and adenxia

Type of infection	Number	Percentage
keratitis	36	33
Conjunctivitis	28	26
Blepharitis	21	19
Orbital cellulitis	6	6
Preseptal cellulitis	5	5
Stye	4	4
Dacryocystitis	8	7
Total	108	100%

Discussion

Vernal catarrh was the most common disorder accounting for 27.0% of the cases. Previous reports of allergic conjunctivitis as the most common surface disorder in children are corroborated by this study,(2,5). Communities with largely agrarian labor and a dusty environment may be contributory,(2). Moreover, rural living in salah- alddin is a risk factor for the development of chronic allergic conjunctivitis in children,(6).In this study males 70.7% were predominantly affected than females 29.3%. Similar male preponderance was found in another study at Laytan Rahmatullah Benovelant Trust Swat,(7).The higher incidence noted among older children 11-15 years may be related to factors affecting late presentation to an eye care facility for a chronic recurrent disease rather than the actual prevalence of the disease. Adequate management can bring symptoms under control and prevent potentially blinding complications, loss of concentration and absenteeism from

school,(8). Refractive errors accounted for 14.6% of the pediatric ophthalmic disorders compared to the study carried out in India rural population 2.7%,(9). And urban area of Santiago Chile 15.8%,(10).Refractive errors affect childhood development, given that 80% of learning in children is sight-dependent,(11).In the absence of regular preschool or school eye-screening for refractive errors, many children with refractive errors go unnoticed. The incidence of refractive errors in this study may have been underestimated since it was a hospital-based study, and only children with obvious complaints would be detected. Moreover, the higher incidence reported in older children could be due to better articulation and detection of visual problems by older children, suggesting a lack of detection by parents and teachers at younger ages. The female prevalence is similar to a previous report, suggesting that young females tend to report visual problems more than males,(12).Hypermetropia was most common and accounted for 45% of refractive errors in our study. This is similar to a study where hypermetropia was more common during childhood,(13).And different from other studies carried in Pakistan where astigmatism was most common and accounted for 46.25%,(1). Ocular trauma was the third most common morbidity seen in this study accounted for 13.8% which is similar to other reports in which pediatric eye injuries were the third,(5,14).Or fourth, (15). Most common disorder reported. The reason for such a high frequency of pediatric eye injuries in this environment is not clear. The largely agrarian nature of the communities in salah alddin may predispose the children to injuries from twigs and farming activities.Children are particularly at risk of ocular injury due to their decreased ability to detect and avoid potential hazards,(16,17). Further study of predisposing factors to eye injuries in children in this region is needed, given that the identification of the causes of injury helps in developing effective preventive measures,(16).The male preponderance reported here has been previously described,(17).The higher incidence of injuries among school age children, constituting 78% among all traumatic eye is also similar to other studies, (16,18).This group represents an independent and adventurous age group, making them more vulnerable. Closed globe injury was most common constituting 65%, consistent with several previous studies, (16,19).Although a study by Kaduna found that open globe injuries were more common, (18). The challenge of managing childhood eye injuries in this environment is enormous. Considerations range from late presentation to eye care centers to a lack of facilities, the low socioeconomic status of the children involved, the special care required during examination, postoperative management and the risk of amblyopia, (5,16,18,19).Prevention of ocular trauma in children remains a priority in order to reduce ocular morbidity, (16). Corneal infection in present study contribute 33% of the infections of the eye and adenxia and are are particularly notorious for causing blinding corneal scars, this is consistent with that reported in study in south western Nigeria in which corneal infection constituted more than one third of the infections of the eye and adenxia ,(20).And differ from that reported in study in Pakistan in which bacterial conjunctivitis was most common infection of the eye,(1). 36 % of the childhood keratitis in this study was due to herpetic simplex which differ from that reported in study in south western Nigeria in which 33% of childhood keratitis was due to measles,(20).And consistent with that reported in study in Ibadan-Nigeria in which herpes simplex keratitis was commonest etiological type,(21).The male preponderance 56% and preschool children were more likely to present with infection of the eye and adenxia which is consistent with that reported in study in south western Nigeria,(20). Squints were seen in 12% of pediatric ophthalmic disorders compared to the study carried out in Kathmandu reported that the prevalence of squint was 1.6%,(22).And Pakistan 8.06%,(1). Male preponderance and preschool children were more likely to present with esotropia , consist with study carried in Ausralia,(23).Amblyopia constitute 40% of the cases 83% with esotropia and 17% with

exotropia. Determinants of strabismus diagnosis are important because of the amblyogenic nature of certain concurrent amblyopia,(23).Esotropia is more likely to be amblyogenic than exotropia,(24). NLD obstruction contribute 5.2%, this is consistent with that reported in study in Pakistan in which NLD obstruction was involve in 5.4%,(1).uveitis accounted for 3.3% of the paediatric ophthalmic disorders compared to study carried out in Pakistan 0.5%,(1).And south western Nigeria 2.1%,(20).Among these 64% were anterior uveitis and higher in older children consistent with study in Nigeria,(20).Cataract in our study accounted for 2.2% of the paediatric ophthalmic disorders compared to Pakistan study 8.9%,(1).And south western Nigeria study 6.6%,(20).Cataract is a leading cause of treatable blindness,(25). The major causes of bilateral cataract in South Asia are rubella (25%), heredity (25%), and idiopathic (50%),(26).Twelve (63%) childhood cataract cases in this study were congenital compared to Nigerian study 47%,(20).Childhood cataracts are not managed as a simply smaller version of adult cataracts and pose different challenges including preoperative assessment, general anesthesia, correction of aphakia, postoperative care and follow up for posterior capsular opacification or glaucoma,(20).Many patients are poor and cannot afford the available cataract surgical services, especially intraocular lens implantation, which is the best option for aphakic correction in most children to reduce the incidence of post-operative amblyopia,(26). Retinoplastoma accounted for 0.4% of childhood eye diseases during the study period, compared to study carried out in Pakistan 1%,(1).South western Nigeria 1%,(20). Some of these cases were new while the remaining were follow up cases. Glaucoma accounted for 1.7% of the paediatric ophthalmic disorders compared to Nigeria study 1.4%,(20). Pakistan study 0.9%,(1).

Conclusions and Recommendation

The most common causes of childhood ocular morbidity in this study were allergic conjunctivitis ,refractive error, trauma, infection, squint and NLD obstruction. Males were more affected than female. The most common age group affected was 11-15 years. These Disorders require specialist eye care services for proper management give that they lead to absenteeism from school and are potentially blinding. Appropriate health education needs to be disseminated for the prevention of childhood eye injuries, as well as early presentation of children to ophthalmological department for the treatment eye disorders. Occupational training and cosmetic rehabilitation for surviving retinoplastoma patients.

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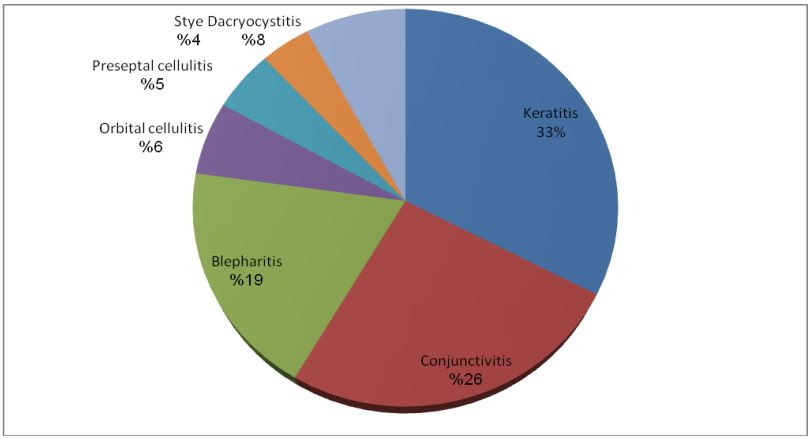

Fig (4):- Types of childhood infections of the eye and adenxia