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Bacterial Isolates and their Antibacterial Sensitivity Pattern in Children less than 2 Year Age with Conjunctivitis

Pradnya Vitthal Gawai[1]*, Ajab c. Dhabarde [2]
MS ophthalmology, Senior Resident, MGIMS, Sewagram.
MS ophthalmology, Professor, MGIMS, Sewagram.

ABSTRACT

There is variation in the in vitro efficiency of antibacterial agents against bacterial pathogens causing conjunctivitis. Thus, the current trends in the aetiology of conjunctivitis and its antimicrobial susceptibility must be updated to make a rational choice of initial antibiotic therapy. The study aim to identify bacteria causing conjunctivitis in children less than 2 years age and to analyses their antimicrobial susceptibility pattern. A study was conducted among 40 patients with conjunctivitis less than 2 years of age. Sociodemographic and clinical data were collected. Conjunctival swabs were collected using sterile swabs; gram staining was done and inoculated on MacConkey's agar, chocolate agar and blood agar culture media. The antimicrobial susceptibility pattern of isolates was determined. Staphylococcus aureus, Streptococcus pneumoniae amounted to 90%. Overall 90% were susceptible to gentamicin, 80-85% to ciprofloxacin and ofloxacin. Coagulase positive staphylococcus aureus were the most frequent bacteria isolated from the conjunctiva of the patient and most of them sensitive to aminoglycosides and fluoroquinolones.

Keywords: conjunctivitis; sensitivity; antibiotics

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INTRODUCTION

Bacterial conjunctivitis is common external ocular infections that affect persons of all age.[1] The 2005 NAMCS data set showed an estimated 4,016,544 visits to ambulatory physicians for bacterial conjunctivitis were made.[2] In India incidence of neonatal conjunctivitis is reported from 0.5-33%.[3]Neonatal conjunctivitis is a significant cause of childhood blindness. One in eight children has one episode of conjunctivitis every year, with more than 1 million episodes in the UK and more than 5 million in the USA.[4] In Africa between 1000 and 4000 new-borns were blinded by ophthalmia neonatorum annually.5 The incidence of blindness from ophthalmia neonatorum ranges from 1.6% or less to 23 % among the 80 million babies born annually throughout the world.[6]

AIM OF STUDY

The study aim to know the bacterial isolates and antibacterial susceptibility pattern among the children less than 2 years of age. There is variation in the in vitro efficiency of antibacterial agents against bacterial pathogens causing conjunctivitis. Thus, the current trends in the aetiology of conjunctivitis and its antimicrobial susceptibility must be updated to make a rational choice of initial antibiotic therapy.

MATERIALS AND METHOD

A prospective, cross sectional study was performed on 40 patients reporting to tertiary care hospital of rural set up (hospital based population).

The study duration was 18 months (Nov 2015 to Sep 2017)

The materials for the present study has been drawn from patients with conjunctivitis less than 2 years of age attending the outpatient Department of Ophthalmology. Each patient was subjected to detailed demographic history taking. History of fever, upper respiratory tract infection or Preauricular lymphadenopathy was asked. The duration of redness and discharge and types of discharge in the affected eye were asked.

Sample Size

Sample size was calculated for 35% prevalence of infective conjunctivitis with confidence of 95% and power 80% with this sample of 35 was required. But considering 10% loss to follow up and with aim to have adequate sample size 40. The desired sample size was estimated using the formula n=4PQ/l2.

Inclusion criteria-

The materials for the present study had been drawn from patients with conjunctivitis attending the outpatient Department of Ophthalmology with age <2years.

Exclusion criteria-Patient with other ocular disorder like congenital dacryocystitis, blepharitis and posterior segment abnormality were excluded from the study.

Torch light examination-Initially torch light examination was done.

Slit lamp examination - Slit lamp examination done for children those allow for the presence of lid crusting, type of discharge, conjunctival congestion and chemosis.

Fluorescein staining- Corneal staining was done with 2% fluorescein to see for corneal involvement.

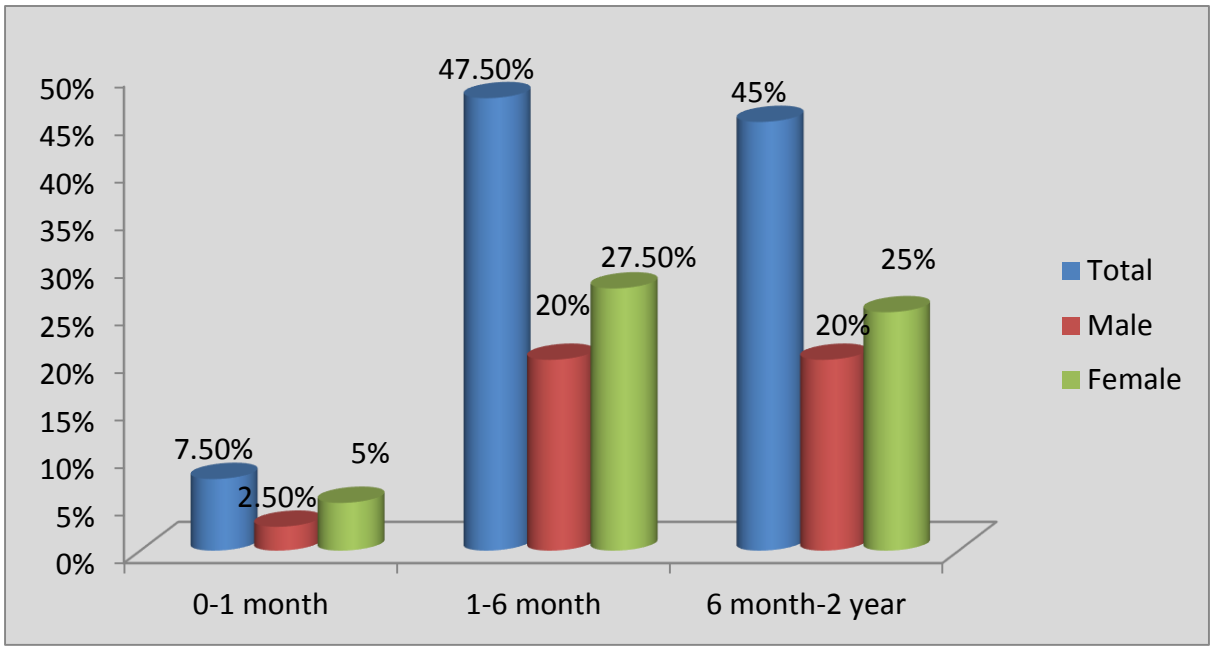
Conjunctival swab- After detailed ocular examination Specimens were taken by sterile broth moistened cotton swabs by rolling them over the palpebral conjunctiva from medial canthus to lateral canthus of one or both eyes. The Gram-staining was done for each swab. Swabs were cultured aerobically on sheep blood agar, chocolate agar, Mac Conkey agar and nutrient agar media.

Inoculation on Media-Inoculation of swab was done on blood agar, chocolate agar and Mac Conkeys agar.

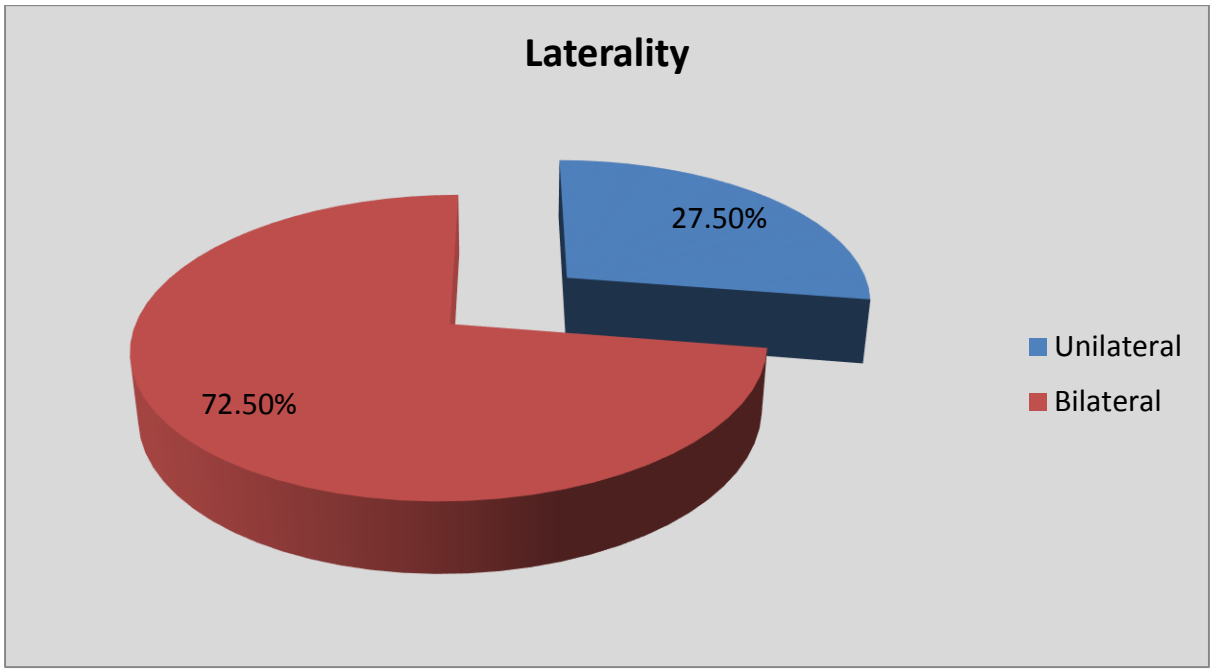
TREATMENT

Firstly gentamycin eye wash was given with 0.1ml gentamycin injection (80mg/2ml) in 10ml normal saline to affected eye.

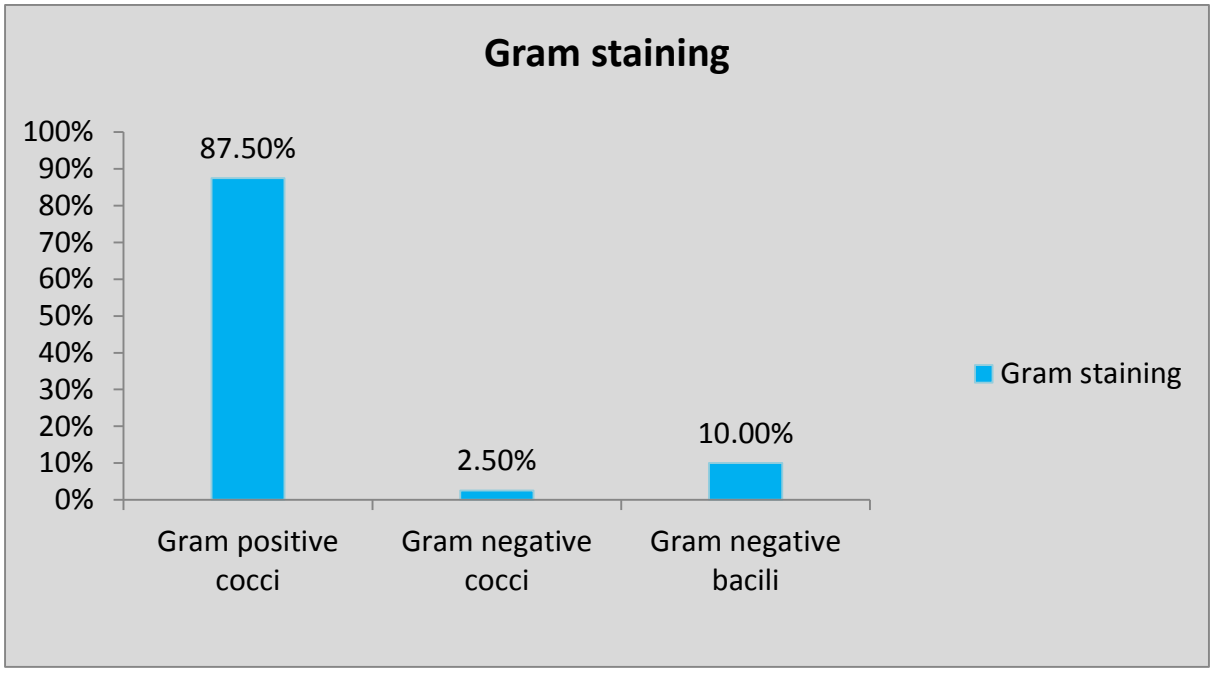
Patients with bacterial conjunctivitis with age group less than 2 years were given tobramycin0.3% eye drops for 7 days. The frequency of eye drops was depend upon the severity of signs. Chlorocol ointment was prescribed twice a day for 7 days.



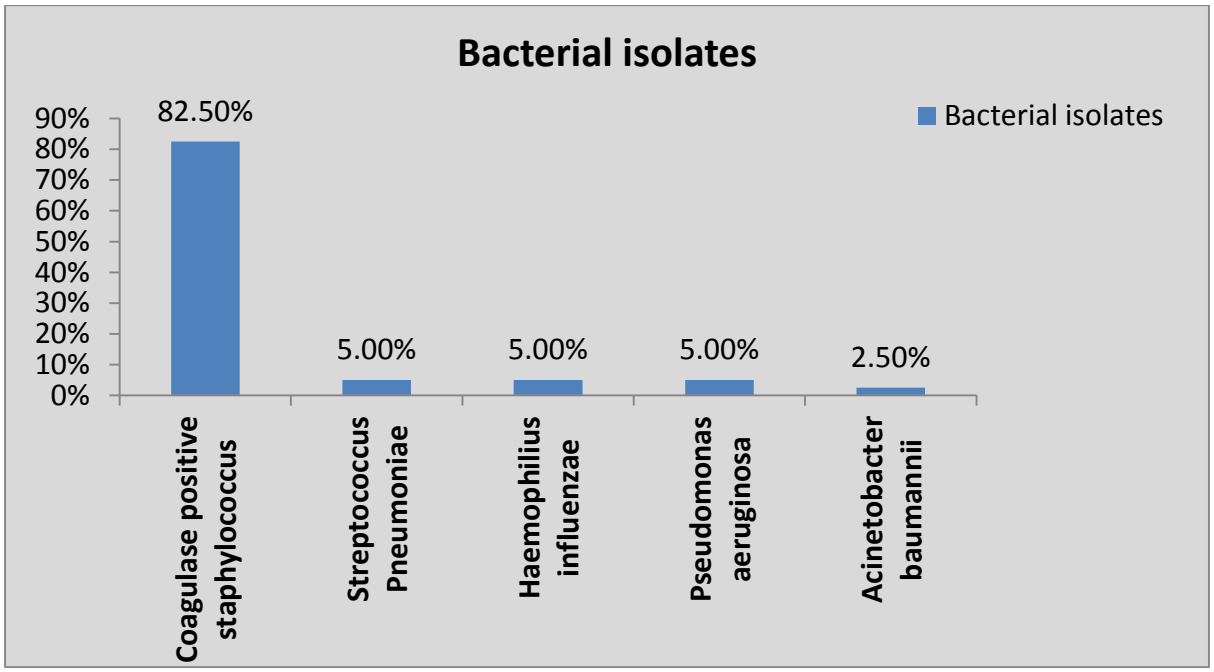
Result-Graph showing age and gender wise distribution of patients with conjunctivitis in age group < 2 years.



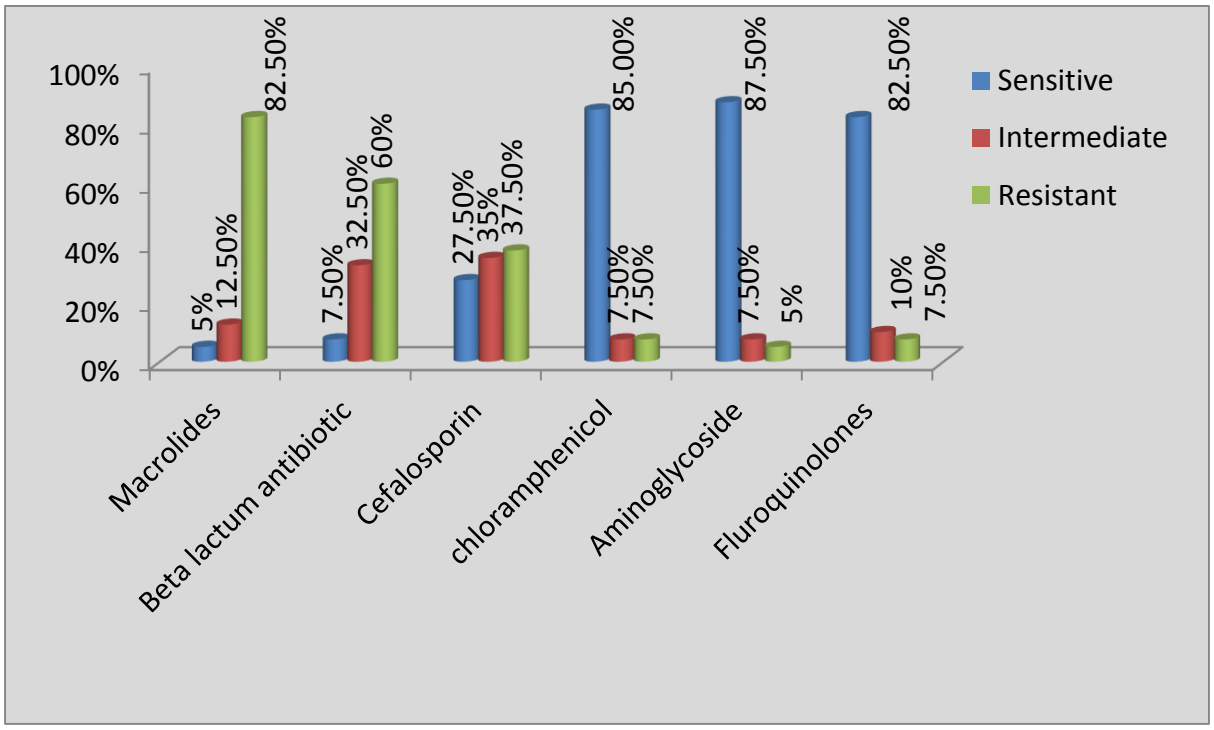
Laterality of conjunctivitis patients



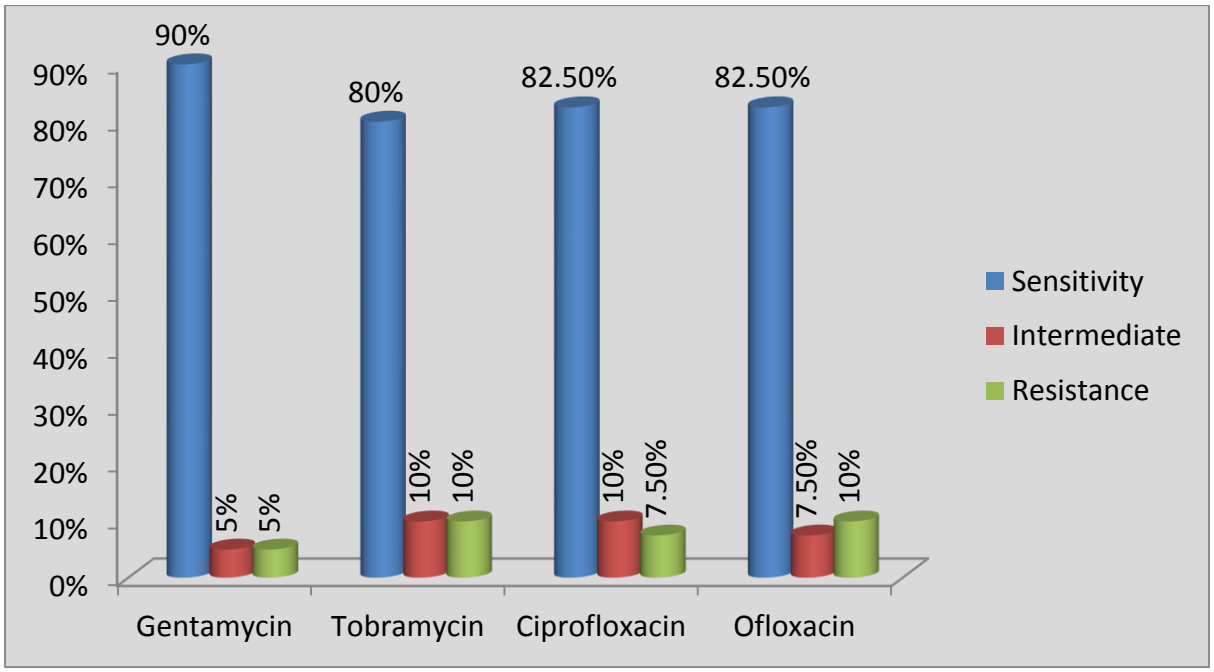
Gram staining in conjunctivitis



Bacterial isolates in conjunctivitis patients



Antibiotic sensitivity pattern in patients with conjunctivitis



Sensitivity to specific antibiotic

RESULTS AND DISCUSSION

Bacterial conjunctivitis is most common type of acute bacterial conjunctivitis in children. Bacterial conjunctivitis is mostly associated with fever in age group between 0-2 years. Initially it was unilateral, later it becomes bilateral.

Mostly scattered gram positive cocci seen on gram staining.

In 82.5% patients growth of Coagulase positive staphylococcus aureus has been seen, 5% streptococcus pneumoniae, 5% Haemophilus influenzae, 5% Pseudomonas aeruginosa, 2.5% Acinetobacter baumannii has been seen. Most of the bacteria are sensitive to fluoroquinolones, chloramphenicol and aminoglycosides. 90% of bacteria were sensitive to Gentamycin, while 82.5% bacteria were sensitive to Ciprofloxacin and Ofloxacin and 80% bacteria were sensitive to Tobramycin.

CONCLUSSION

In conclusion the key element in the diagnosis of bacterial conjunctivitis is the clinical suspicion by ophthalmologist. Bacterial conjunctivitis is common in India due to poor hygiene, low socioeconomic status and absence of awareness. However, due to the potential serious complications from Gonococcal conjunctivitis, it is important to know the exact aetiology of bacterial conjunctivitis to institute appropriate therapy in time.

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