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Clinical Therapy of UTI in Children Under the Age of Five Varies Widely

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Abstarct:- Urinary tract infection (UTI) is a common bacterial infection in babies and children, counting for four to ten percent of febrile children admitted to sanitarium. It's frequently delicate to honor UTI in babies and youthful children due to the presenting symptoms and signs.E.coli is the most common bacterial cause of UTI, and its vulnerability patterns vary with geographical region. This study aims to identify the clinical, bacteriological, and radiological biographies of UTI and reduce the variability of clinical practise in the operation of UTI in children under the age of five. The study actors' age and coitus distribution, with 39(41.1) in the age group between 1 months and 12 months, 32(33.7) between 13 months and 48 months, and 24(25.3) between 49 months and 60 months, influences the frequence of UTI. UTI affects women more constantly than men across all age orders, with dysuria, frequence, abdominal pain, pungent urine, and fever being the most common symptoms.67.4 of babies with UTI had substantial pyuria, and 8 distinct species of bacteria were discovered in 95 societies. Colistin and amikacin were the two medicines that Pseudomonas SPP that causes UTI was most sensitive to, followed by CIP. 18 of the 95 kiddies had serious anomalies. This study set up that urinary tract infections(UTI) are more current in babies(1- 12 months) and decline with age. The most common clinical symptom was fever, followed by dysuria and stomach pain.E. coli was the most common bacterium causing UTI, followed by klebsiella and proteus. After collecting urine for culture, a suspected UTI can be treated empirically with an aminoglycoside or a third generation cephalosporin, but there's a significant frequence of in- vitro resistance to amoxicillin and trimethoprim- sulfamethoxazole. When children were submitted to ultrasonography,18.9 of them displayed radiological abnormalities, with cystitis, pyelonephritis, and vesicourethral influx being the most frequent findings. MCU is needed to exclude VUR.

Keywords: *Paediatric Uti, Urinary Tract Infection, Infants, Abnormalities, Affected, Condition, Fever.*

I. INTRODUCTION

Urinary tract infection(UTI) is a common bacterial infection in babies and children. It's the third most common infection in the paediatric age group, counting for four to ten percent of febrile children admitted to sanitarium. It's frequently delicate to honor UTI in babies and youthful children because the presenting symptoms and signs are minimum or frequentlynon-specific. The typical trio of abdominal pain, puking and fever with chills, rigor or supra- pubic pain are common donations. UTI is one of the causes of serious bacterial illness in babies taking sanitarium admissions and has been associated with significant morbidity. It has also been allowed to be get or contribute to, the development of renal scarring and latterly leading on to renal failure, hypertension and end stage renal complaint. Some children are at threat of developing UTI due to certain anatomic and physiologic factors, similar as vesicoureteric kickback(VUR).E.coli is the most common bacterial cause of UTI, and its vulnerability patterns vary with geographical region. The aetiology of pediatric UTI and antibiotic vulnerability of urinary pathogens in both the community and hospitals have been changing, and medicine resistance has come a major problem. It's important to diagnose this condition at the applicable time as it's a preventable cause of renal damage. In our position, no attestation has been done and this dearth of information could limit clinicians consideration for UTI while assessing children under five with fever. This study aims to ascertain the common presenting features, laboratory and radiological abnormalities generally seen.

II. MATERIALS AND METHODS

➢ *Inclusion Criteria:*

Any child who is suspected of having a urinary tract infection and whose infection is later confirmed by a positive urine culture is between the ages of 1 month and 5 years.

➢ *Exclusion Criteria:*

- Age <1 month and > 5 years.
- Children with history of antibiotic intake less than 7 days to the day of enrolment.
- Children under went urological manipulation such as catheterisation or with urinary tract anomaly.
- Children with chronic illness such as severe PEM, malignancies, nephrotic syndrome, glomerulonephritis, chronic renal failure and HIV/ acquired immunodeficiency will also be excluded.
- Children with definitive source of fever on examination.

ISSN No:-2456-2165

➢ *Descriptive Maneuver:*

A written consent from each child's parent or legal guardian was obtained before include any children who met the study's eligibility requirements. Background data on the patient's demographics, prior incidence of UTI, clinical presentation, family history of UTI/VUR drug use, prior interventions, and any additional complaints were gathered from the patient's guardian or parent.

➢ *Sample Collection:*

For children under the age of two, clean catheterization was used to collect urine samples; for older children, midstream clean catch collection was used. Within an hour of collection, sterile vials were utilized to collect urine samples, which were then used for microscopy, culture, and sensitivity testing.

➢ *Microbiological And Radiological Methods:*

Urine bitsy examination of a centrifuged sample for White blood cells was done. Urine instance were invested on Cysteine lysine electrolyte deficient(CLED) medium using a standard 1microml circle and incubated aerobically at 37 °C for 72 hours. After 72 hours of incubation, bacterial colonies were linked grounded on characteristic social morphology, gram stain appearance and standard commercially set biochemical tests. Antimirobial vulnerability pattern of insulated bacterial pathogens were determined by Kirby Bauer prolixity system as per the Clinical Laboratory norms Institute(CLSI). The results were reported as sensitive, intermediate or repel ant to the agents that had been tested.

➢ *Radiological Investigations:*

All childrens were subjected to Ultrasonographic examination of the abdomen of soon after the diagnosis of UTI. The Micturating cystourethrogram (MCU) was done before discharge of the child from hospital, while DMSA scan is carried out 2-3 months after treatment[3].

➢ *Study Definitions:*

As per Indian Society of Pediatric Nephrology (2010).

Depending on how the urine is collected, a certain number of bacteria must be present in order to diagnose UTI.

Table 1 Criteria for the Diagnosis of UTI[3]

Method of collection	Colony count	Probability of infection
Suprapubic aspiration	Any number of pathogens	99%
Urethral catheterization	$>5\times10^4$ CFU/ml	95%
Midstream clean catch	$>10^5$ CFU/ml	90-95%

Leukocyturia: Presence of > 5 WBCs/high power field in a centrifuged urine sample or more than 10 WBCs/mm^3 in uncentrifuged urine.

➢ *Statistical Tools:*

The data were analysed using SPSS (Statistical Package for Social Science) Ver 20. Continuous data were analyzed for its mean, median and standard deviation (summary statistics). Categorical variable were analyzed using chi-square test and ‘p’ value of ≤ 0.05 will be considered as statistically significant.

III. OBSERVATION AND RESULTS

Table 2 Age Distribution of Study Participants

Age Groups	Frequency	Percentage
1 - 12 months	39	41.1
13 – 48 months	32	33.7
49 – 60 months	24	25.3
Total	95	100

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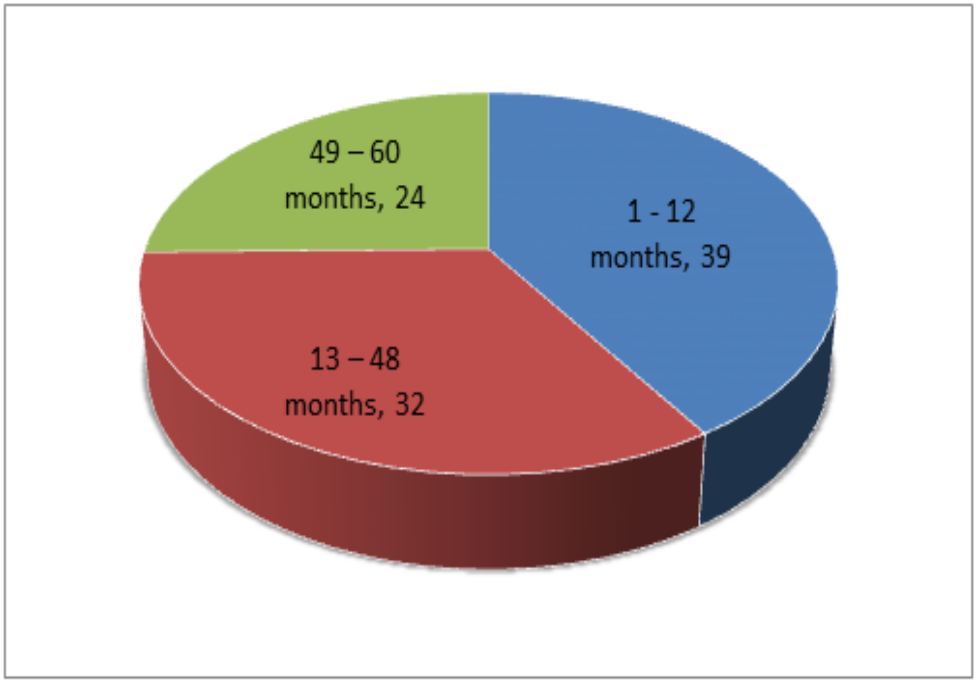

Fig 1 Age Distribution of Study Participants

Out of the total 95 children, 39 (41%) were in the age group of 1-12 months, 32 (33.7%) in 13-48 months and 24 (25.3%) were in the age group of 49-60 months.

Table 3 Distribution of Sex Among Study Participants

Sex	Frequency	Percentage
Male	45	47.4
Female	50	52.6
Total	95	100

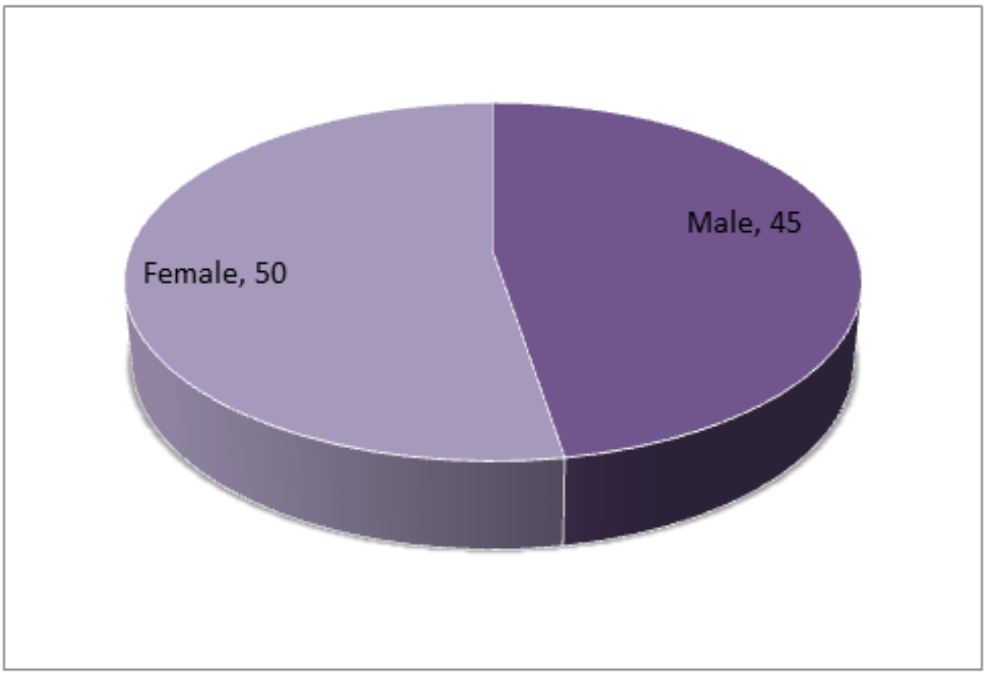

Fig 2 Distribution of Sex Among Study Participants

Among these 95 children, 50 (52.6%) were females and 45 (47.4%) were males.

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Table 4 Age and Gender Distribution

Age Groups	Sex		Total
	Male	Female	
1 - 12 months	18	21	39
13 – 48 months	15	17	32
49 – 60 months	12	12	24
Total	45	50	95

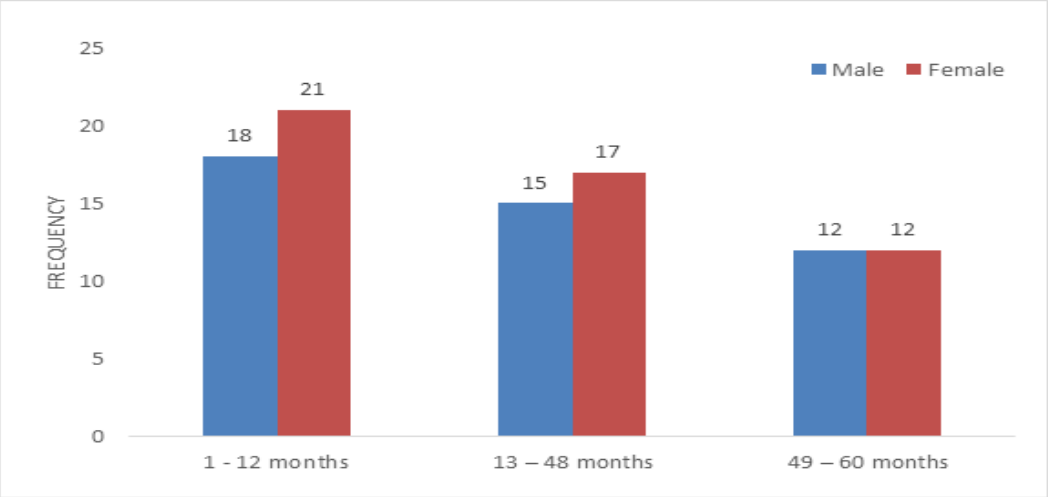

Fig 3 Age and Gender Distribution

Among the 95 study participants, 45(47.4%) were males and 50 (52.6%) were females. According to age wise distribution 39 were in the age group of 1-12 months ,out of which 18 (46.2%) were males and 21 (53.8%) were females. In the 13-48 months age group 32 children were there, among that 15 (46.9%) were males and 17(53.1%) were females. Out of the 24 children in 49-60 age group, there was equal distribution of 12(50%) males and 12(50%) females.

Table 5 Distribution of Fever Among Study Participants

Fever	Frequency	Percentage
Present	64	67.4
Absent	31	32.6
Total	95	100

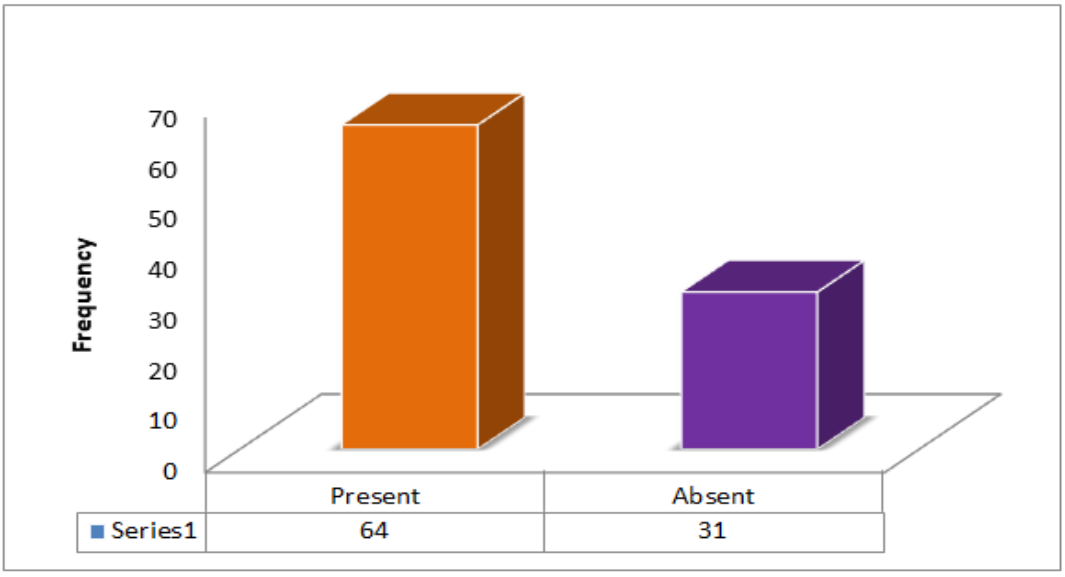

Fig 4 Distribution of Fever Among Study Participants

Out of 95 children, 64 (67.4%) presented with fever and 31 (32.6%) did not have fever at the time of the study.

Table 6 Distribution of Abdominal Pain Among Study Participants

Abdominal Pain	Frequency	Percentage
Present	35	36.8
Absent	60	63.2
Total	95	100

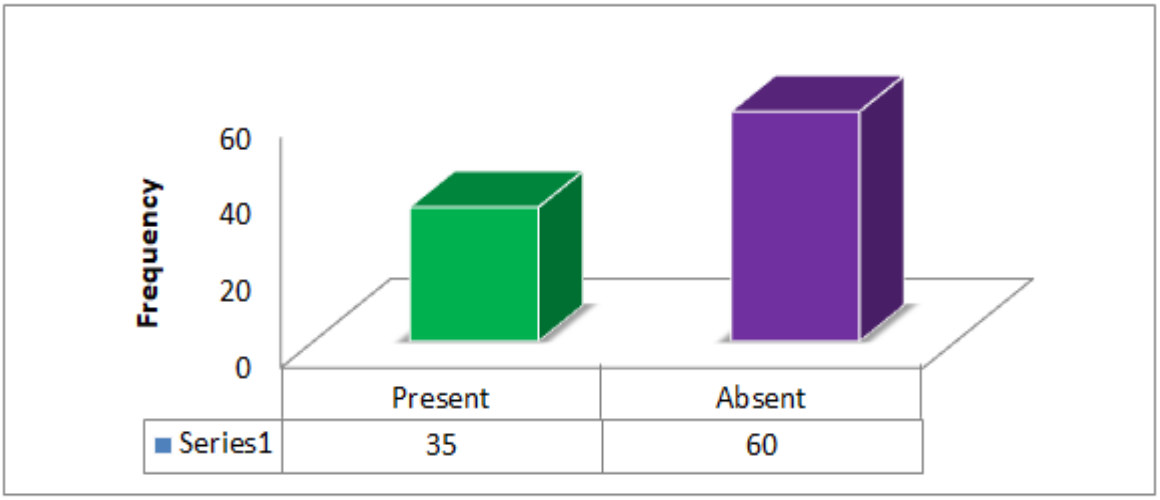

Fig 5 Distribution of Abdominal Pain Among Study Participants

Among the 95 study participants, 35 (36.8%) were reported to be having abdominal pain and 60 (63.2%) without abdominal pain.

Table 7 Distribution of Nausea/Vomitting Among Study Participants

Nausea/Vomiting	Frequency	Percentage
Present	20	21.1
Absent	75	78.9
Total	95	100

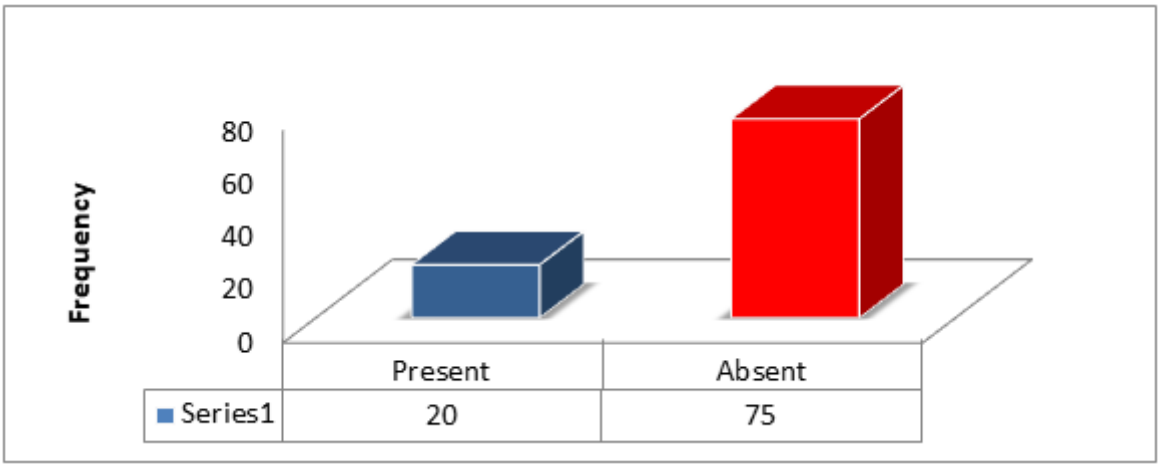

Fig 6 Distribution of Nausea/Vomitting Among Study Participants

When asked about the presence of Nausea/Vomitting, 20 (21%) were reported to have Nausea/Vomitting and 75 (79%) with out Nausea/Vomitting.

Table 8 Distribution of Smelly Urine Among Study Participants

Smelly Urine	Frequency	Percentage
Present	8	8.4
Absent	87	91.6
Total	95	100

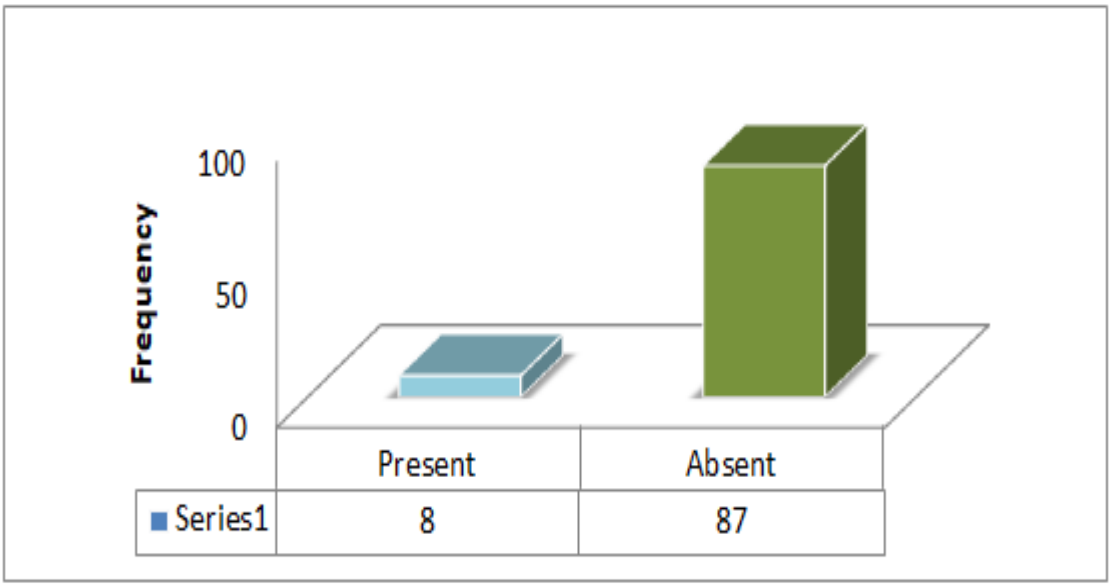

Fig 7 Distribution of Smelly Urine Among Study Participants

Out of 95 children, 8 (8.4%) were found to be having smelly urine and 87 (91.6%)were not having so.

Table 9 Distribution of Increased Frequency of Urine Among Study Participants

Increased Frequency	Frequency	Percentage
Present	11	11.6
Absent	84	88.4
Total	95	100

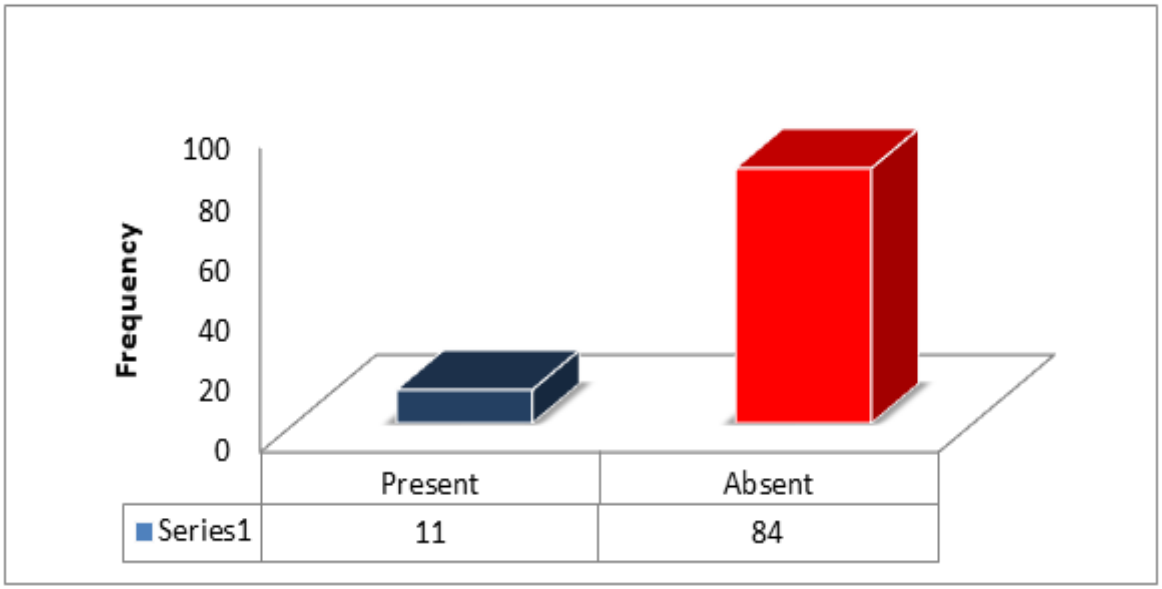

Fig 8 Distribution of Increased Frequency of Urine Among Study Participants

Out of 95 children, presence of increased frequency of urine was reported in 11 (11.6%)and 84 (88.4%) with absence of increased frequency.

Table 10 Distribution of Dysuria Among Study Participants

Dysuria	Frequency	Percentage
Present	22	23.2
Absent	73	76.8
Total	95	100

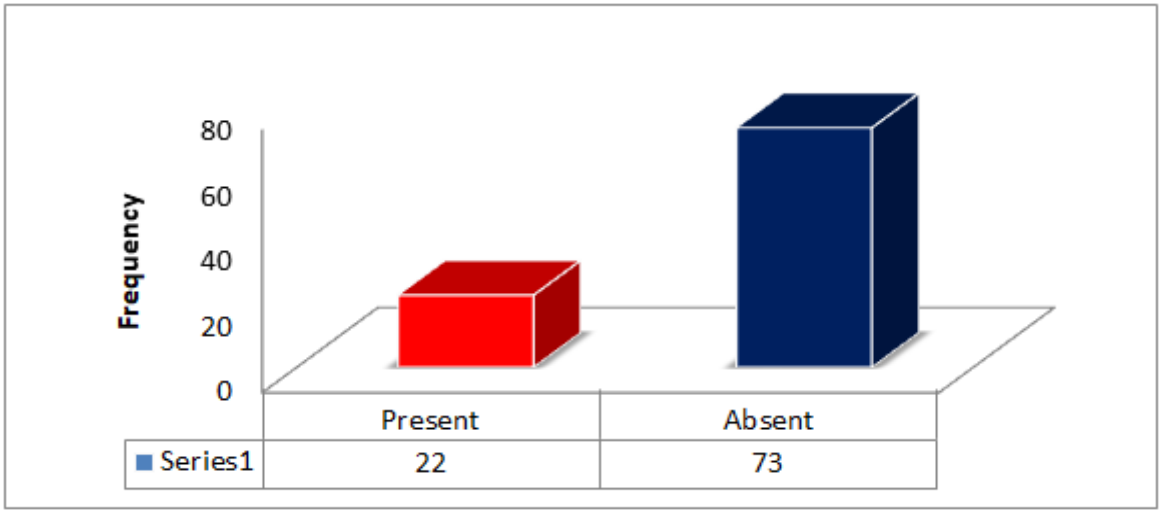

Fig 9 Distribution of Dysuria Among Study Participants

The presence and absence of dysuria among 95 study participants showed that dysuria present in 22 (23.2%) and absent in 73 (76.8%)

Table 11 Distribution of Pyuria Among Study Participants

Pyuria	Frequency	Percentage
Present	83	87.4
Absent	12	12.6
Total	95	100

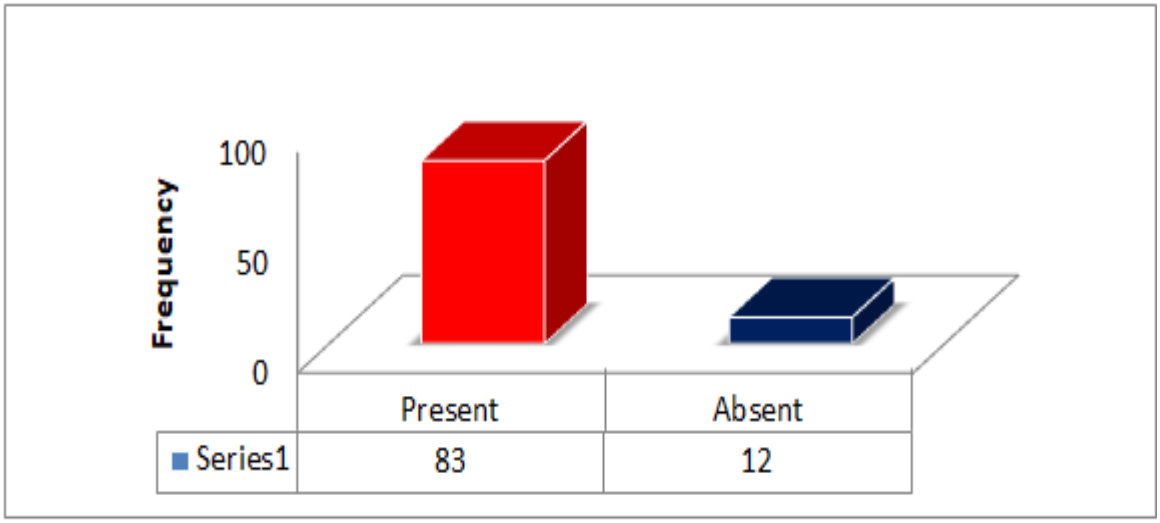

Fig 10 Distribution of Pyuria Among Study Participants

This study showed that among 95 children, 83 (87.4%) children had pyuria and 12 (12.6%) had not.

Table 12 Distribution of Bacterial Growth Among Study Participants

BACTERIAL GROWTH	Frequency	Percentage
E.Coli	63	66.3
Klebsiella	13	13.7
Proteus	6	6.3
Pseudomonas	4	4.2
Coagulase Negative Staphylococci(Cons)	3	3.2
Enterobacter	3	3.2
Enterococcus Fecalis	2	2.1
Morganella	1	1.1
Total	95	100

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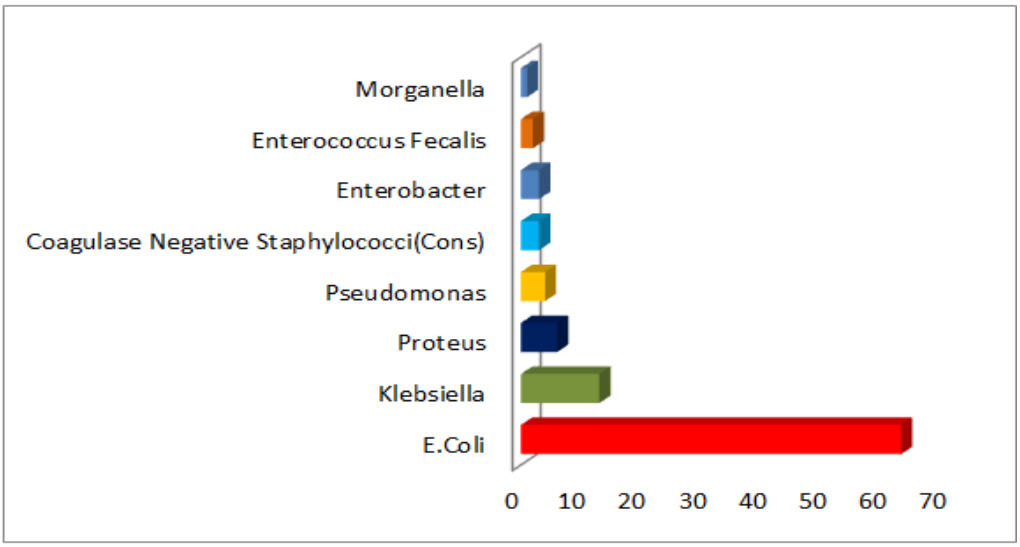

Fig 11 Distribution of Bacterial Growth Among Study Participants

Among the study participants, 63 (66.3%) were reported to be infected with E.coli, 13 (13.7%) with Klebsiella, 6 (6.3%) with Proteus, 4 (4.2%) with Pseudomonas, 3 (3.1%) with Coagulase Negative Staphylococci (Cons), 3 (3.1%) with Enterobacter, 2(2.1%) with Enterococcus Fecalis, and 1 (1.1%) with Morganella.

Table 13 Distribution of Sensitive, Intermediate and Resistance Pattern in Different Antibiotics used

Antibiotics	Sensitive	Intermediate	Resistance
Amoxicillin	25(26.3)	2(2.1)	68 (71.6)
Amikacin	70(73.7)	1(1.1)	24(25.3)
Gentamycin	77(81.1)	3(3.2)	15(15.8)
Ceftazidime	75(78.9)	1(1.1)	19(20)
Ciprofloxacin	69(72.6)	3(3.2)	23(24.2)
Cefoperazone	72(75.8)	10(10.5)	13(13.7)
Nitrofurantoin	66(69.3)	8(8.4)	21(22.1)
Septran	59(62.1)	3(3.2)	33(34.7)
Piptaz	73(76.8)	7(7.4)	15(15.8)
Meropenem	70(73.7)	9(9.5)	16(16.8)
Colistin	95(100)	0	0

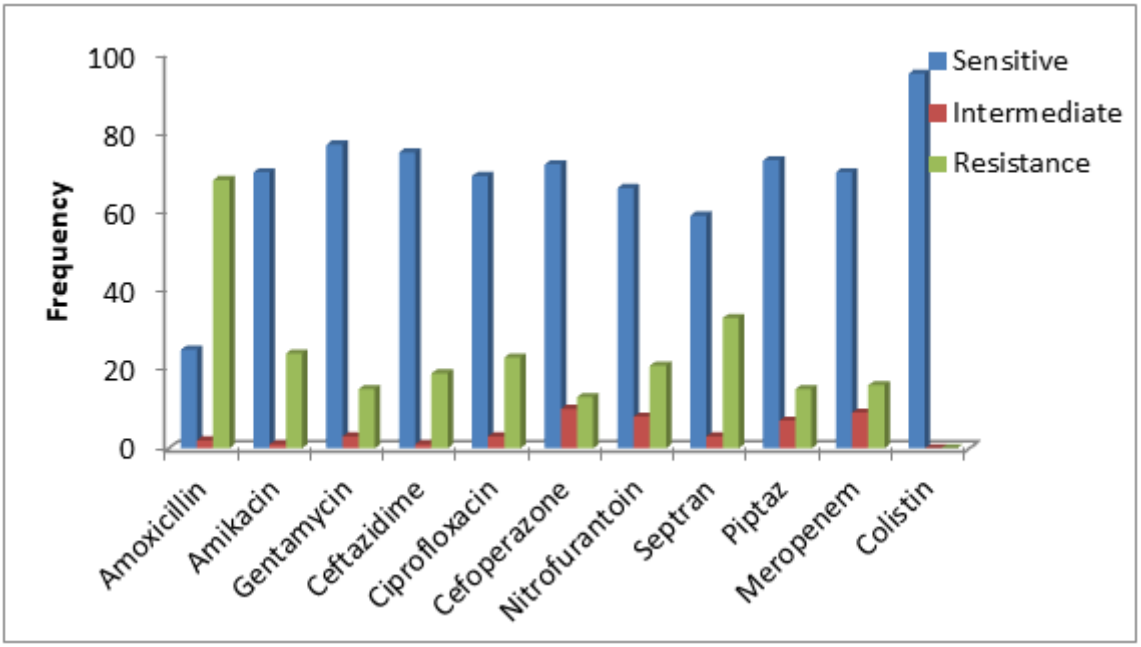

Fig 12 Distribution of Sensitive, Intermediate and Resistance Pattern in Different Antibiotics used

ISSN No:-2456-2165

Among the antibiotics, colistin had showed the highest sensitivity of 100% followed by Gentamycin 81.1% and Ceftazidime 78.9%. In view with resistance , these organisms showed lowest resistance to colistin (0%).

Table 14 Distribution of Ultra Sound Finding of Study Participants.

USG	Frequency	Percentage
Bladder Wall Thickening (Cystitis)	9	9.5
Pyelonephritis	5	5.3
Vur	3	3.2
Urolithiasis	1	1.1
Normal	77	81.1
Total	95	100

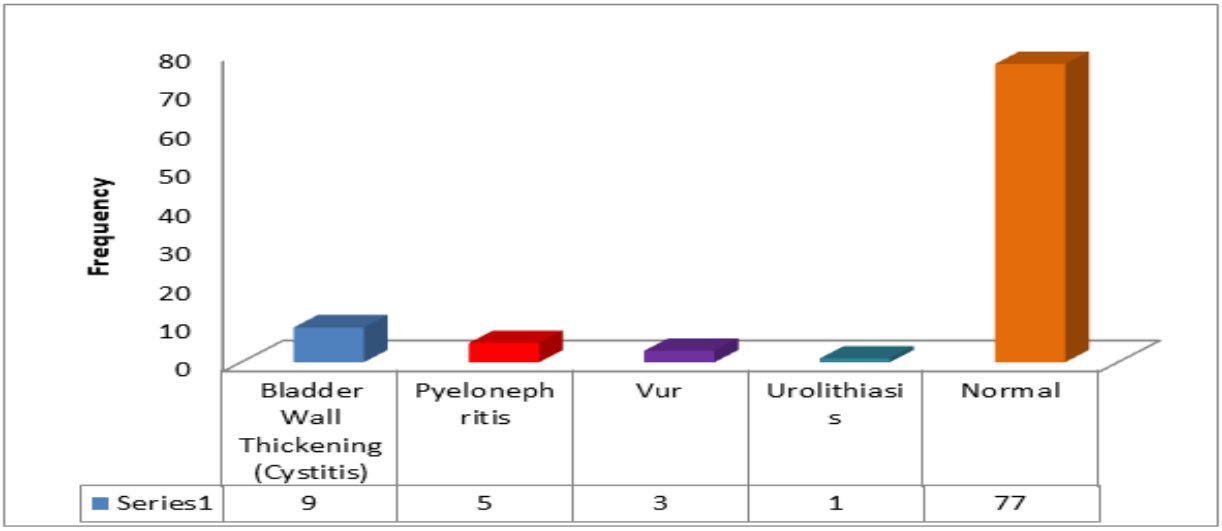

Fig 13 Distribution of Ultra Sound Finding f Study Participants.

Among the 95 children, 77 (81%) were found to be normal, 9 (9.4%) had bladder wall thickening, 5 (5.2%) had pyelonephritis, 3 (3.1%) had VUR and only 1(1%) had urolithiasis.

Table 15 Distribution of MCU Finding of Study Participants.

MCU	Frequency	Percentage
VUR	14	14.7
PUV	3	3.2
Normal	78	82.1
Total	95	100

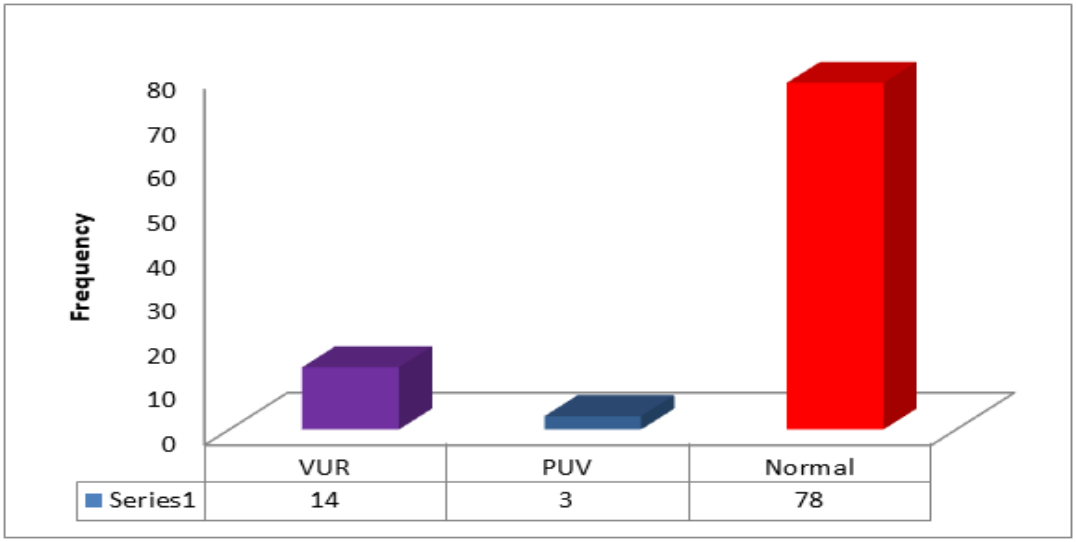

Fig 14 Distribution of MCU Finding of Study Participants.

ISSN No:-2456-2165

The MCU findings revealed that out of 95, 78 (82.1%) were normal, 4 (4.2%) had VUR and 3 (3.1%) had PUV.

Table 16 Distribution of DMSA Finding of Study Participants.

DMSA	Frequency	Percentage
Multiple scars	8	8.4
Normal	56	58.9
Test could not be done	31	32.6
Total	95	100

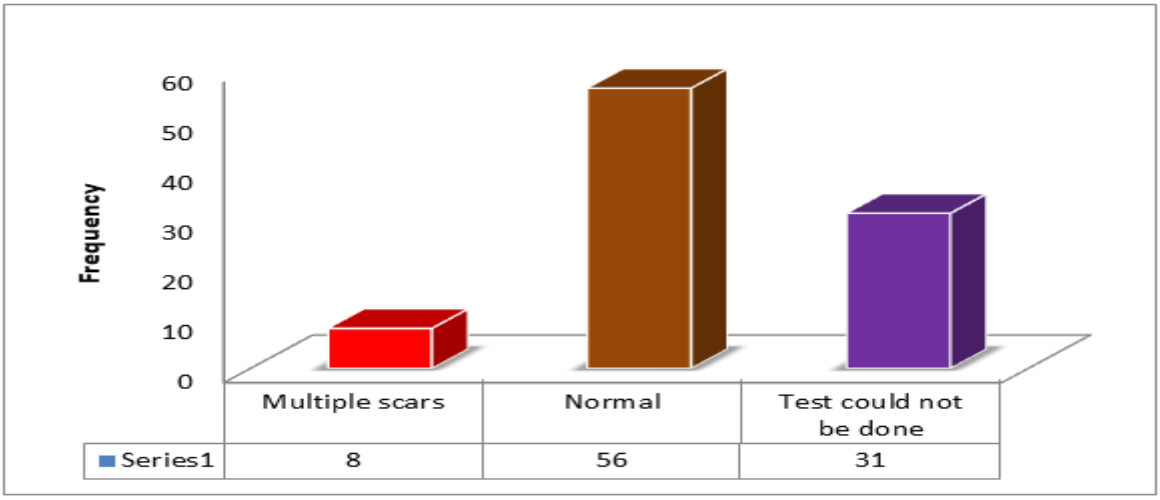

Fig 15 Distribution of DMSA Finding of Study Participants.

The DMSA scan was done in 64 study participants, among which 56 (59%) were normal, 8 (8.4%) had multiple scars and the test could not be done for 31(32.6%).

Table 17 Distribution of Bacterial Growth in Different Age Group

BACTERIAL GROWTH	Age groups			Chi-Square	P value
	1 - 12 months	13 – 48 months	49 – 60months		
E.Coli	23	23	17	15.39	0.35
Klebsiella	5	4	4		
Proteus	4	2	0		
Pseudomonas	3	0	1		
Coagulase Negative Staphylococci (Cons)	1	0	2		
Enterobacter	2	1	0		
Enterococcus Fecalis	0	2	0		
Morganella	1	0	0		
Total	39	32	24		

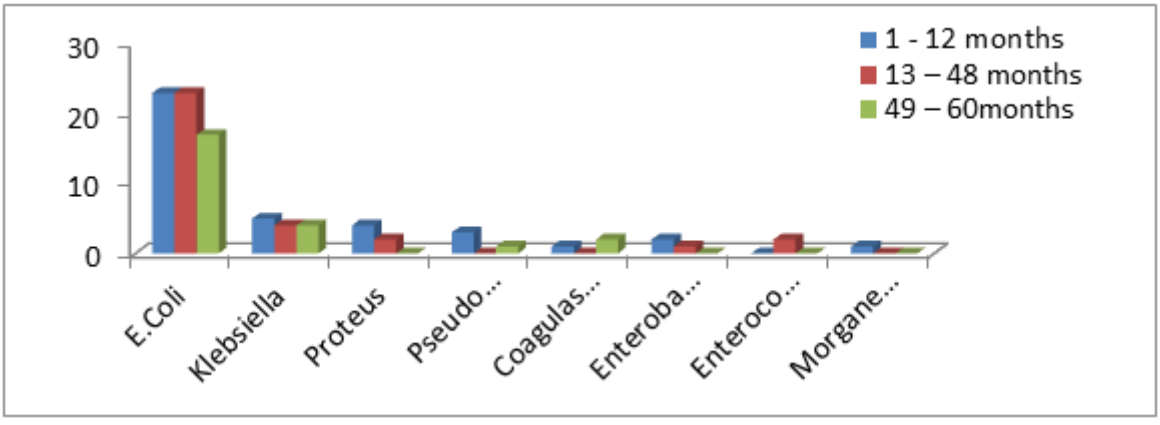

Fig 16 Distribution of Bacterial Growth in Different Age Group

ISSN No:-2456-2165

In this study, among the 1- 12 months age group,58.9 were infected withE.coli,12.8 with klebsiella,10.3 with proteus,7.7 with pseudomonas,5.1 with enterococcus,2.6 with morganella and2.6 with coagulase negative staphylococcus. In 13-48 months,71.9 with E coli,12.6 with klebsiella,6.2 with proteus,3.1 with enterobacter,6.2 with enterococcus faecalis. In 49- 60 months age group, 70.8 with ecoli, 16.7 with klebsiella, 4.2 pseudomonas,8.3 with coagulase negative staphylococcus. Distribution of Bacterial growth in different age group showed no association.

Table 18 Age Distribution and Sensitive Pattern in Amoxicillin

Age Groups	Amoxicillin			Chi-square	P value
	Sensitive	Intermediate	Resistant		
1 - 12 months	11	1	27	0.862	0.93
13 – 48 months	8	1	23		
49 – 60 months	6	0	18		
Total	25	2	68		

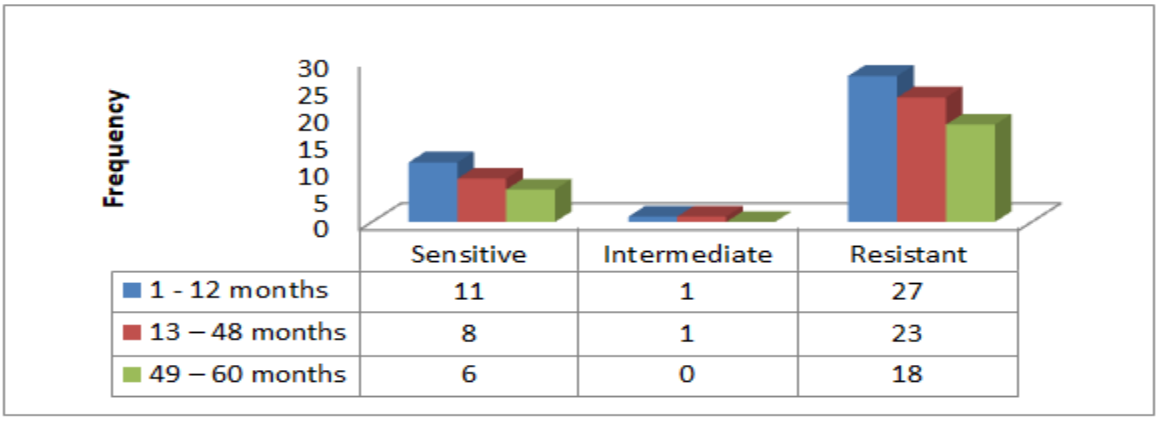

Fig 17 Age Distribution and Sensitive Pattern in Amoxicillin

28.2% of people showed sensitivity between 1 and 12 months, 2.6% showed intermediate sensitivity, and 69.2% showed resistance. 13-48 month olds were 25% sensitive, 3.1% had moderate sensitivity, and 71.8% had resistance. Amoxicillin is largely resistant in the 49–60 age range (75%), and just 25% were susceptible.

The relationship between the age distribution and the amoxicillin sensitivity pattern is not statistically significant.

Table 19 Age Distribution and Sensitive Pattern in Amikacin

Age Groups	Amikacin			Chi-square	P value
	Sensitive	Intermediate	Resistant		
1 - 12 months	23	1	15	9.278	0.05*
13 – 48 months	25	0	7		
49 – 60 months	22	0	2		
Total	70	1	24		

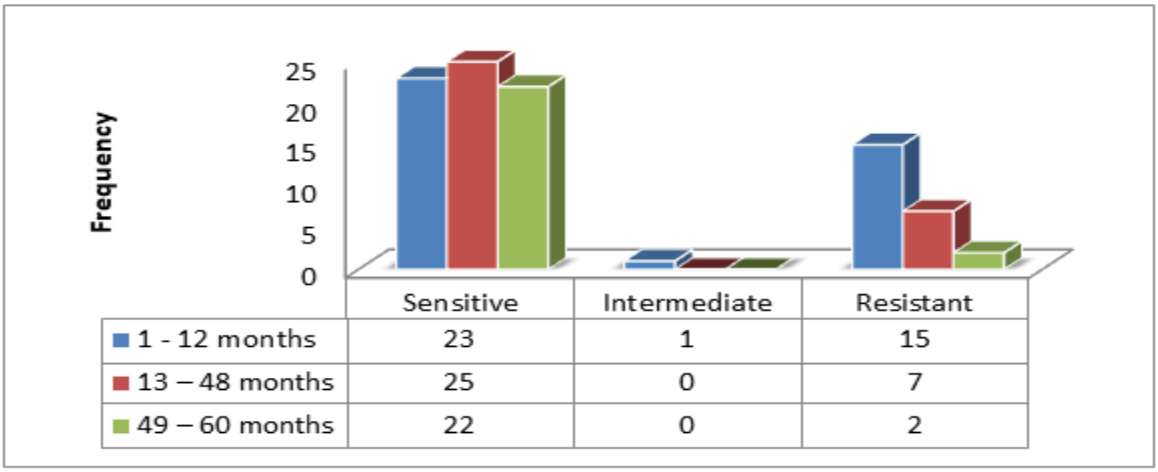

Fig 18 Age Distribution and Sensitive Pattern in Amikacin

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39 people aged 1 to 12 months were tested, and out of those, 58.9% were amikacin susceptible, 2.6% showed intermediate sensitivity, and 38.5% were resistant. The sensitivity and resistance among children aged 13 to 48 months were 78.1% and 21.9%, respectively. In 49–60 months, amikacin has the highest sensitivity (91.7%), and the lowest resistance (8.3%).

Age distribution and amikacin sensitivity have a strong statistical relationship.

Table 20 Age Distribution and Sensitive Pattern in Gentamycin

Age Groups	Gentamycin			Chi-square	P value
	Sensitive	Intermediate	Resistant		
1 - 12 months	29	2	8	3.029	0.553
13 – 48 months	28	1	3		
49 – 60 months	20	0	4		
Total	70	3	15		

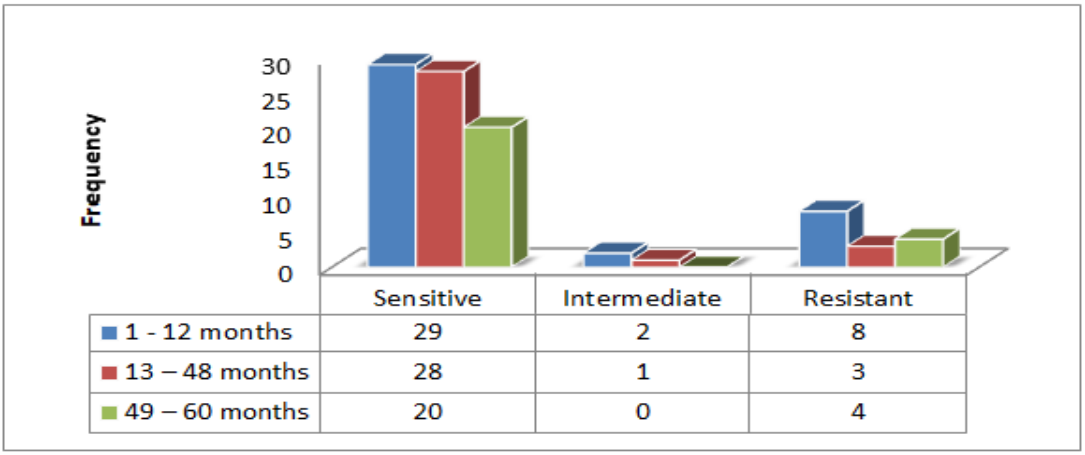

Fig 19 Age Distribution and Sensitive Pattern in Gentamycin

Among 1-12months, gentamycin has sensitivity, intermediate and resistance of 74.4%,5.1%and 20.5% respectively. Between 13 to 48 months, the sensitivity increased to 87.5% ,intermediate sensitivity of 3.1%and resistance of 9.4%. in 49-60 months, 83.3% sensitive and 16.7% resistant. There is no corelation between age distribution and sensitive pattern of gentamycin.

Table 21 Age Distribution and Sensitive Pattern in Ceftazidime

Age Groups	Ceftazidime			Chi-square	P value
	Sensitive	Intermediate	Resistant		
1 - 12 months	26	1	12	8.364	0.079
13 – 48 months	26	0	6		
49 – 60 months	23	0	1		
Total	70	1	19		

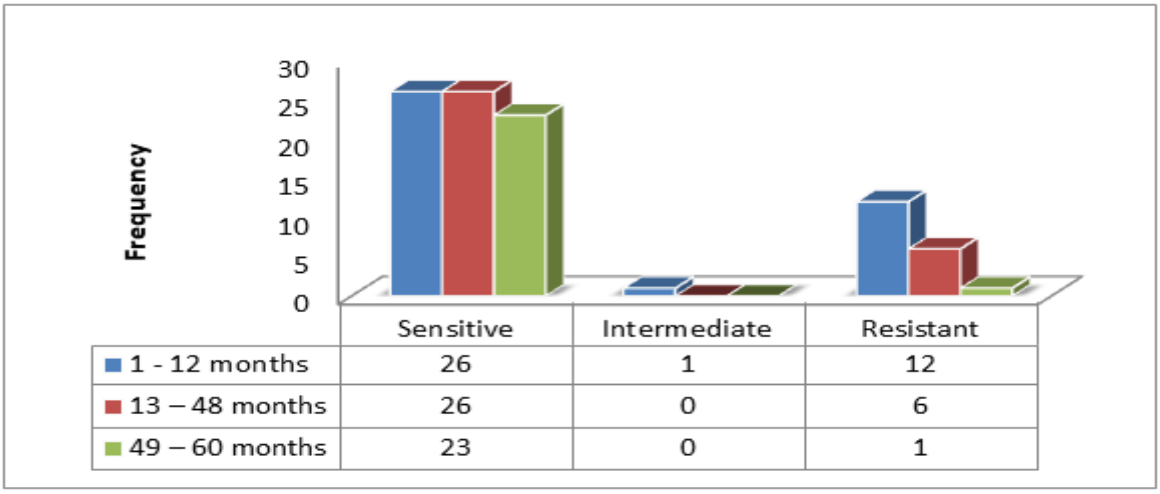

Fig 20 Age Distribution and Sensitive Pattern in Ceftazidime

ISSN No:-2456-2165

In this study, ceftazidime showed the maximum sensitivity of 95.8% in the age group of 49–60 months, followed by 81.2% in the age group of 13–48 months and 66.7% in the age group of 1–12 months. Only 4.2%, 18.8%, and 30.8% of patients were found to be resistant in 49–60 months, 13–48 months, and 1–12 months, respectively.2.6% has moderate sensitivity between 1 and 12 months.

There is no discernible connection between ceftazidime and age distribution.

Table 22 Age Distribution and Sensitive Pattern in Ciprofloxacin

Age Groups	Ciprofloxacin			Chi-square	P value
	Sensitive	Intermediate	Resistant		
1 - 12 months	26	1	12	4.50	0.342
13 – 48 months	22	1	9		
49 – 60 months	21	1	2		
Total	70	3	23		

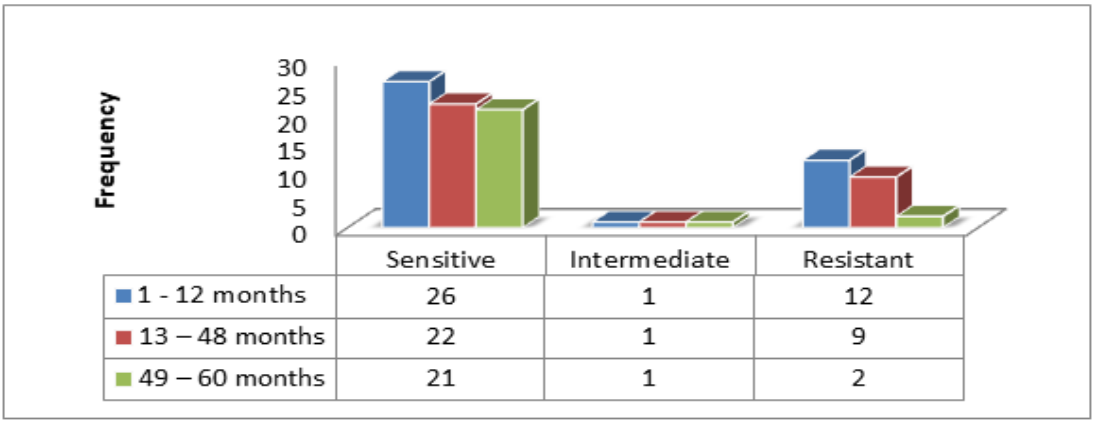

Fig 21 Age Distribution and Sensitive Pattern in Ciprofloxacin

Between 1-12 months, 66.7% showed sensitivity ,2.6% with intermediate and 30.8%with resistance. In 13-48 months, 68.8% were sensitive with 3.1% showing intermediate and 28.2% showing resistance. Among 49-60 years, 87.5% were highly sensitive, intermediate showed by 4.2% and resistance by 8.3%.

Distribution of age and sensitive pattern of ciprofloxacin has no significant relationship.

Table 23 Age Distribution and Sensitive Pattern in Cefoperazone

Age Groups	Cefoperazone			Chi-square	P value
	Sensitive	Intermediate	Resistant		
1 - 12 months	29	5	5	1.724	0.786
13 – 48 months	23	3	6		
49 – 60 months	20	2	2		
Total	72	10	13		

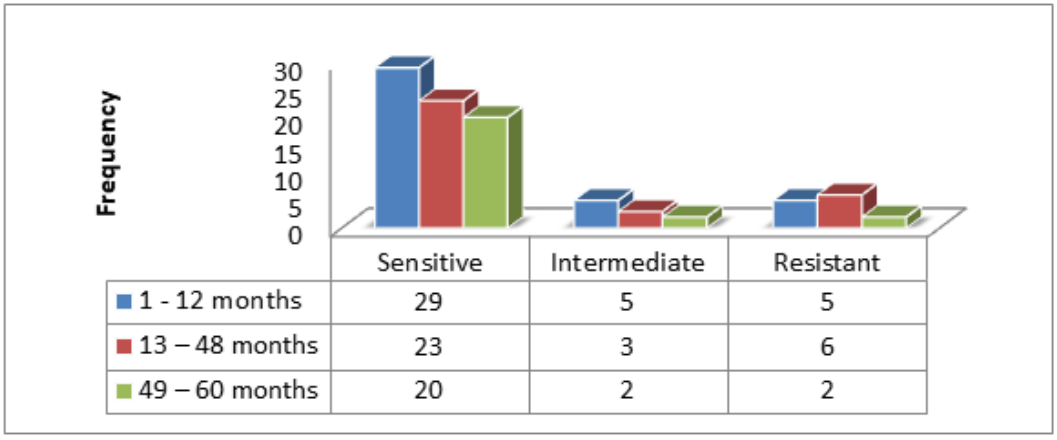

Fig 22 Age Distribution and Sensitive Pattern in Cefoperazone

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Among 39 children in 1-12 months ,74.4% were sensitive , intermediate and resistance showed by 12.8% each.71.9% of children among 32 in 13-48 months showed sensitivity, 9.3% being intermediate and 18.8% showing resistance. Out of 24 in 49-60 age group, 83.4% showed sensitivity, intermediate and resistance showed by 8.3% each.

There is no significant statistical corelation noted

Table 24 Age Distribution and Sensitive Pattern in Nitrofurantoin

Age Groups	Nitrofurantoin			Chi-square	P value
	Sensitive	Intermediate	Resistant		
1 - 12 months	26	4	9	4.052	0.39
13 – 48 months	23	4	5		
49 – 60 months	17	0	7		
Total	66	8	21		

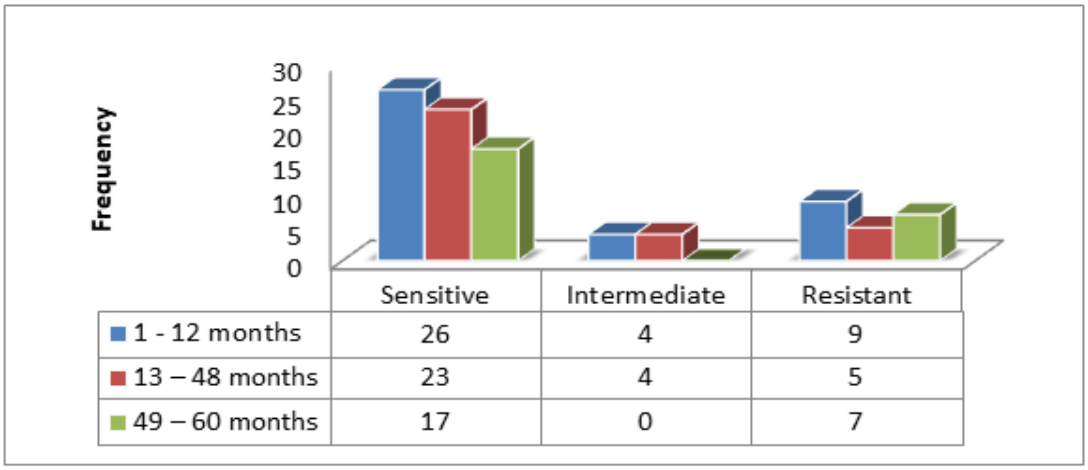

Fig 23 Age Distribution and Sensitive Pattern in Nitrofurantoin

Between 1 to 12 months , 66.7% showed sensitivity while 10.2 % showed intermediate and 23.1% showed resistance.79.9% among 13-48 months showed sensitivity with 12.5% showing intermediate and 15.6% resistance.in 49-60 months age group, 70.8% showed sensitivity and 29.2% showed resistance. There is no significance between nitrofurantoin sensitive pattern and age distribution.

Table 25 Age Distribution and Sensitive Pattern in Septran

Age Groups	Septran			Chi-square	P value
	Sensitive	Intermediate	Resistant		
1 - 12 months	24	0	15	9.760	0.04*
13 – 48 months	20	0	32		
49 – 60 months	15	3	6		
Total	59	3	95		

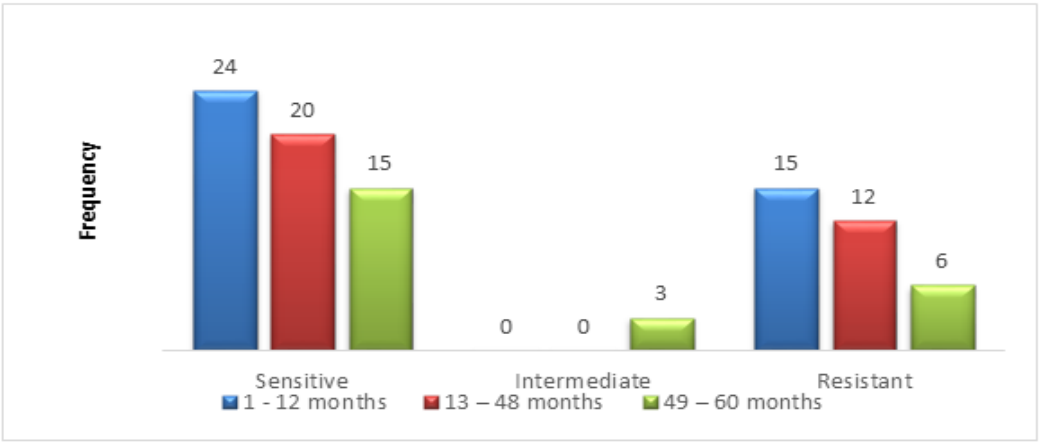

Fig 24 Age Distribution and Sensitive Pattern in Septran

Out of 39 among the 1-12months age, 61.5% showed sensitivity and 38.5% showed resistance. Among 32 in 13-48 months, 62.5% were sensitive and 37.5% were resistant. In 49-60 months out of 24, 62.5% were sensitive,12.5% were intermediate and 25% were resistant. There is a significant statistical correlation between age distribution and septran sensitive pattern.

Table 26 Age Distribution and Sensitive Pattern in Piptaz

Age Groups	Piptaz			Chi-square	P value
	Sensitive	Intermediate	Resistant		
1 - 12 months	26	4	9	5.581	0.233NS
13 – 48 months	26	1	5		
49 – 60 months	21	2	1		
Total	73	7	15		

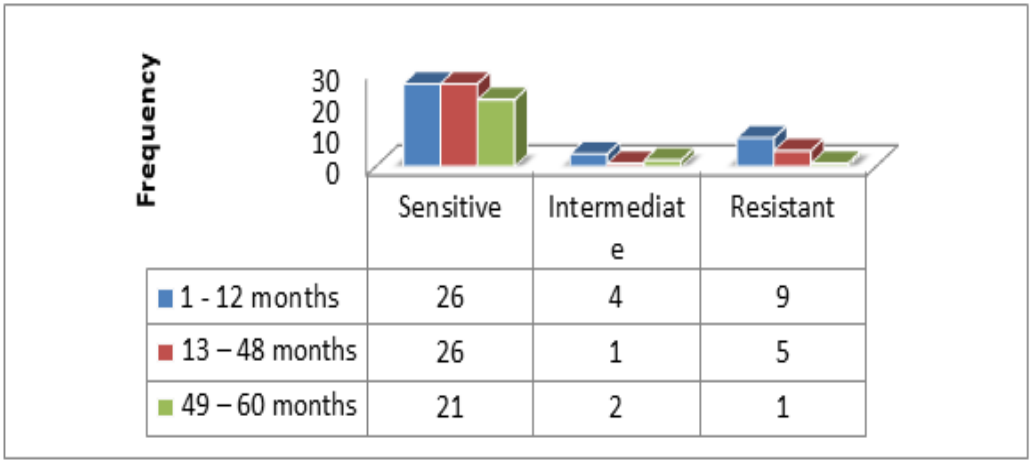

Fig 25 Age Distribution and Sensitive Pattern in Piptaz

Among the study participants in the age group 1-12 months , 66.7% were sensitive to nitrofurantoin , 10.2% were showing intermediate resistant and 23.1% showing resistance. In 13-48months 81.3% were sensitive ,3.1% having intermediate and 15.6% having resistance. Among 49-60 months, 87.5% were sensitive ,8.3% intermediate and only 4.2% resistant.

There is no significant corelation between age distribution and nitrofurantoin sensitive pattern.

Table 27 Age Distribution and Sensitive Pattern in Meropenem

Age Groups	Meropenem			Chi-square	P value
	Sensitive	Intermediate	Resistant		
1 - 12 months	27	4	8	0.925	0.921NS
13 – 48 months	25	3	4		
49 – 60 months	18	2	4		
Total	70	9	16		

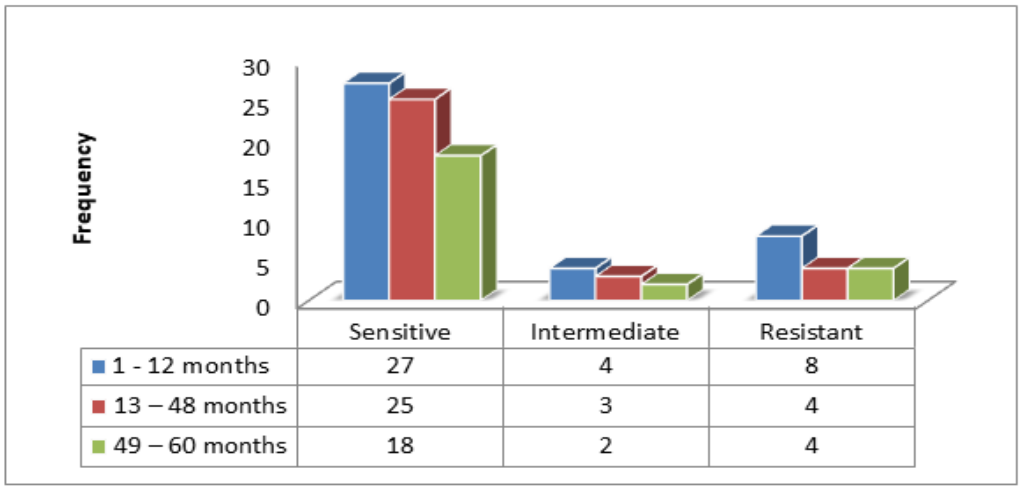

Fig 26 Age Distribution and Sensitive Pattern in Meropenem

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In the 1-12 months age group, 69.2% were sensitive to meropenam, 10.3 % show intermediate and 20.5% show resistance. Among 13-48months, 78.1% were sensitive with 9.3% showing intermediate and 12.5% showing resistance patterns. In 49-60 months age group, 75% showed sensitive, 8.3% intermediate and 16.7% resistance.

Table 28 Age Distribution and Sensitive Pattern in Colistin

Col	
Age Group	**Sensitive**
1 - 12 months	39
13 – 48 months	32
49 – 60 months	24
Total	95

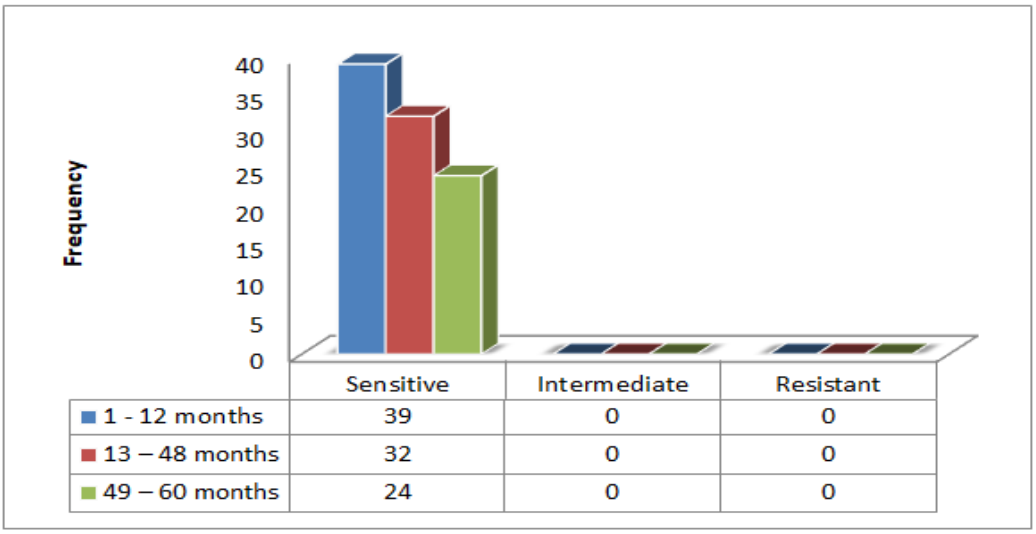

Fig 27 Age Distribution and Sensitive Pattern in Colistin

Colistin has the maximum sensitivity of 100% in all the age groups under this study.

Table 29 Antibiotic Sensitivity Pattern of Isolated Uropathogens (% Sensitive)

	Number	**Amoxi**	**Amikacin**	**Genta**	**Ceftazi**	**Cipro**	**Cefop**	**Nitro**	**septran**	**Piptaz**	**Merop**	**Colistin**
E.coli	63 (63.3)	19 (30.1)	45 (71.4)	53 (84.1)	51 (80.9)	52 (82.5)	54 (85.7)	49 (77.7)	41 (65.0)	55 (87.3)	54 (85.7)	63 (100)
Klebsiella	13 (13.7)	1 (7.69)	10 (76.9)	12 (92.3)	10 (76.9)	6 (46.15)	7 (53.8)	5 (38.4)	8 (61.5)	10(76.9)	4(30.76)	13(100)
Proteus	6 (6.3)	3(50)	4(66.6)	3(50)	5(83.33)	2(33.33)	3(50)	3(50)	2(33.33)	3(50)	5(83.33)	6(10)
Pseudomonas	4 (4.2)	1(25)	4(100)	2(50)	3(75)	3(75)	2(50)	1(25)	2(50)	1(25)	2(50)	4(100)
Coagulase Negative Staphylococci(Cons)	3 (3.2)	0	2(66.66)	3(100)	2(66.66)	3(100)	2(66.66)	3(100)	2(66.66)	1(33.33)	1(33.33)	3(100)
Enterobacter	3 (3.2)	1(33.33)	3(100)	2(66.66)	1(33.33)	2(66.66)	2(66.66)	2(66.66)	2(66.66)	2(66.66)	2(66.66)	3(66.66)
Enterococcus Fecalis	2 (2.1)	0	2(100)	1(50)	2(100)	1(50)	2(100)	2(100)	1(50)	0	1(50)	2(100)
Morganella	1 (1.1)	0	0	1(100)	1(100)	0	0	1(100)	1(100)	1(100)	1(100)	1(100)

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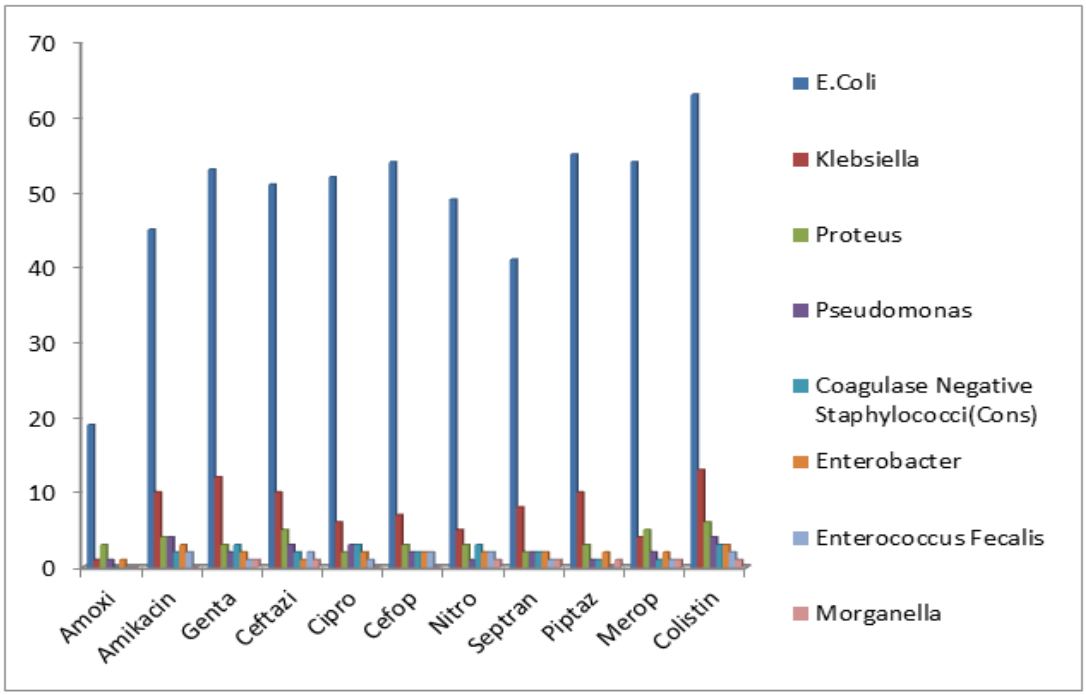

Fig 28 Antibiotic Sensitivity Pattern of Isolated Uropathogens (% Sensitive)

The major uropathogens isolated were Escherichia coli, followed by Klebsiella pneumonia and Proteus. Majority of the E.coli and Klebsiella isolates were sensitive to colistin, meropenem, piptaz, cefoperazone-sulbactam, gentamycine, ceftazi followed by nitrofurantoin.

Table 30 Antibiotic Sensitivity Pattern of Isolated Uropathogens (%Intermediate)

	Number	**Amoxi**	**Amikacin**	**Genta**	**Ceftazi**	**Cipro**	**Cefop**	**Nitro**	**Septran**	**Piptaz**	**Merop**	**Colistin**
E.coli	63 (63.3)	0	0	2(3.17)	1(1.58)	0	2(3.17)	3(4.76)	0	3(4.76)	3(4.76)	0
Klebsiella	13 (13.7)	0	1(7.69)	0	0	3(23.07)	5(28.46)	3(23.07)	2(15.38)	1(7.69)	4(30.76)	0
Proteus	6 (6.3)	0	0	0	0	0	1(16.66)	2(33.33)	0	1(16.66)	1(16.66)	0
Pseudomonas	4 (4.2)	1(25)	0	1(25)	0	0	0	0	1(25)	1(25)	0	0
Coagulase Negative Staphylococci(Cons)	3 (3.2)	0	0	0	0	0	1(33.33)	0	0	1(33.33)	1(33.33)	0
Enterobacter	3 (3.2)	1(33.33)	0	0	0	0	1(33.33)	0	0	0	0	0
Enterococcus Fecalis	2 (2.1)	0	0	0	0	0	0	0	0	0	0	0
Morganella	1 (1.1)	0	0	0	0	0	0	0	0	0	0	0

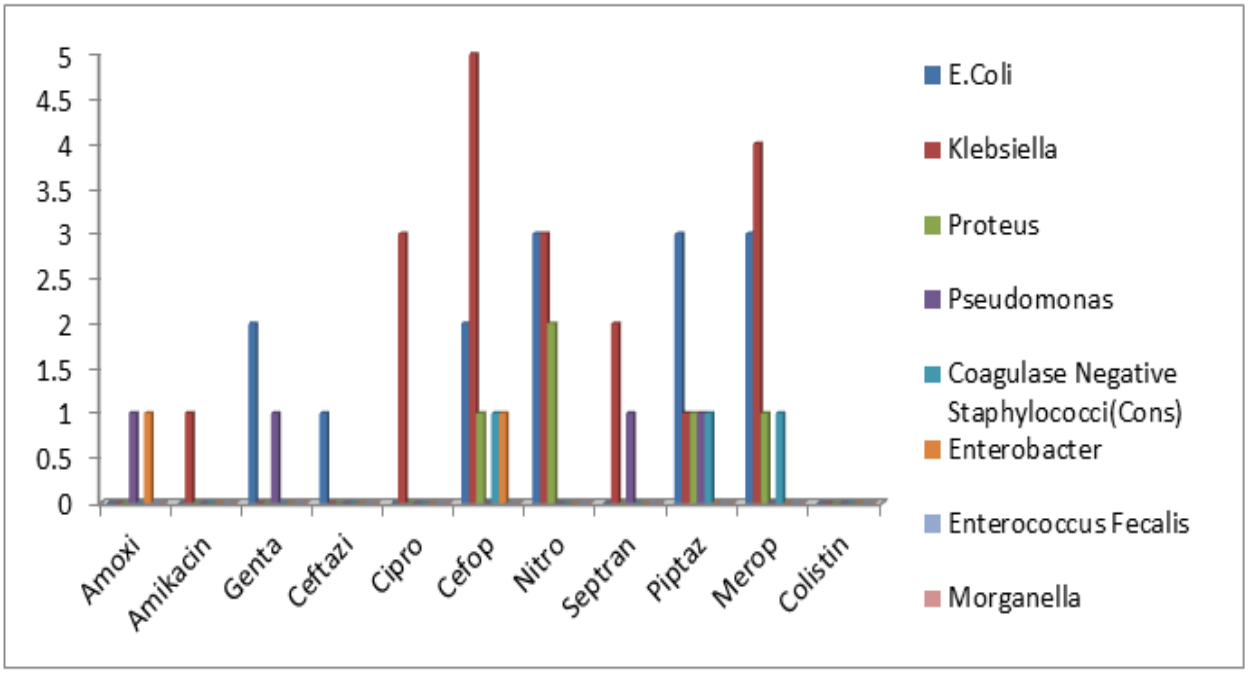

Fig 29 Antibiotic Intermediate Pattern of Isolated Uropathogens (% Intermediate)

Table 31 Antibiotic Resistant Pattern of Isolated Uropathogens (% Resistant)

	Number	Amoxi	Amikacin	Genta	Ceftazi	Cipro	Cefop	Nitro	Septran	Piptaz	Merop	Colistin
E.coli	63 (63.3)	44(69.84)	18(28.57)	8(12.69)	11(17.46)	11(17.46)	7(11.11)	11(17.46)	22(34.92)	5(7.93)	6(9.52)	0
Klebsiella	13 (13.7)	12(92.3)	2(15.38)	1(7.69)	3(23.07)	4(30.76)	1(7.69)	5(38.46)	3(23.07)	2(15.3)	5(38.4)	0
Proteus	6 (6.3)	3(50)	2(33.33)	3(50)	1(16.66)	4(66.66)	2(33.33)	1(16.66)	4(66.66)	2(33.3)	0	0
Pseudomonas	4 (4.2)	2(50)	0	1(25)	1()	1()	2()	3()	1()	2()	2()	0
Coagulase Negative Staphylococci (Cons)	3 (3.2)	3(100)	1(33.33)	0	1(33.33)	0	0	0	1(33.33)	1(33.3)	1(33.3)	0
Enterobacter	3 (3.2)	1(33.33)	0	1(33.33)	2(66.66)	1(33.33)	0	1(33.33)	1(33.33)	1(33.3)	1(33.3)	0
Enterococcus Fecalis	2 (2.1)	2(100)	0	1(50)	0	1(50)	0	0	1(50)	2(100)	1(50)	0
Morganella	1 (1.1)	1(100)	1(100)	0	0	1(100)	1(100)	0	0	0	0	0

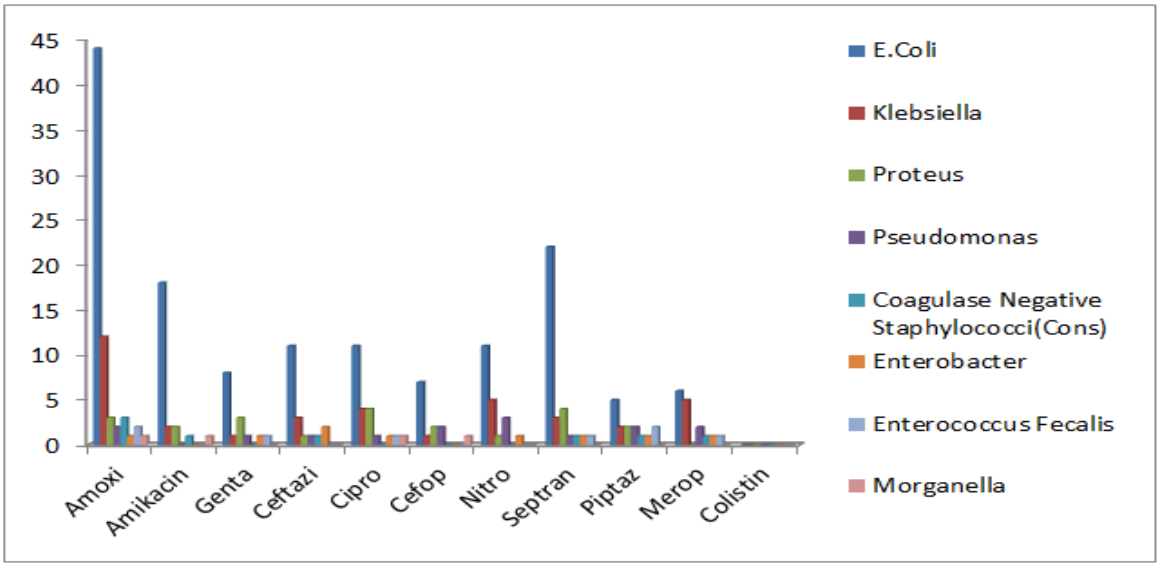

Fig 30 Antibiotic Resistant Pattern Of Isolated Uropathogens (% Resistant)

IV. DISCUSSION

The operation of urinary tract infection(UTI), a frequent cause of acute sickness in babies and kiddies, is impacted by the circumstance of vague signs and symptoms. With the identification of the clinical, bacteriological, and radiological biographies of UTI, this study seeks to reduce the variability of clinical practise in the operation of UTI in children under the age of five. The study actors' age and coitus distribution, with 39(41.1) in the age group between 1 months and 12 months, 32(33.7) between 13 months and 48 months, and 24(25.3) between 49 months and 60 months, influences the frequence of UTI. UTI frequence peaked in immaturity(1 month to 12 months) and peaked in puberty(49- 60 months). Research conducted in the Philippines(21) by Bay AG etal. revealed that women(53.9) were more affected than men(46.1). Males are more affected than ladies, according to Taneja et al(23) who studied youths progressed 12 times. According to this study, UTI affects women more constantly than men across all age orders. generally, dysuria, frequence, abdominal pain, pungent urine, and fever are the clinical signs of UTI. The most frequent symptom, fever, was endured by67.4 of cases, who were also affected by abdominal discomfort(46.8), dysuria(23.2), nausea or vomiting(21.1), increased frequence(11.6), and ripe urine(8.4). Escherichia coli(E.coli,66.3), followed by Klebsiellaspp.(13.7), was the most current pathogen.67.3 of babies with UTI had substantial pyuria, according to urine microscopy, and 8 distinct species of bacteria were discovered in 95 societies. In their exploration in Dhaka, Sharmin S etal. (1990) discovered a analogous trend of antibiotic perceptivity, demonstrating low vulnerability ofE. coli to routinely used specifics as imipenem, ceftazidime, and amikacin. analogous trends were discovered by Nasim Kashef etal.(1991) and Fakhrossadat etal.(1992), who showed that Klebsiella was veritably susceptible to cefixime, nalidixic acid, and ciprofloxacin and largely resistant to ceftriaxone, gentamycin, and trimethoprim- sulfamethoxazole. Colistin and amikacin were the two medicines that Pseudomonas SPP that causes UTI was most sensitive to, followed by CIP. 95 kiddies with UTIs that tested positive on culture passed ultrasonography(USG) and micturating cystourethrogram(MCU). 18 of the 95 kiddies who had USGs had serious anomalies, including thickening of the bladder wall, pyelonephritis, vesicoureteral influx, urolithiasis, and cystitis. Indeed when there was no abnormalities on ultrasonography, MCU was carried out in all cases in agreement with the recommendations of the Indian Association of Pediatric Nephrology. 64 of 95 youths had a dimercaptosuccinic acid checkup(DMSA), of which 56(56.6) had no abnormalities and 8(8.1) showed signs of multitudinous scars.

❖ *Limitations*

The sample size is small and hence may not be representative of the entire population. DMSA checkup couldnot be performed on all subjects due to loss of follow up or plutocrat constraint. We didnot follow up all children prospectively to see if they develop intermittent UTI.

RECOMMENDATIONS

A long- term follow up study of children with UTI, to determine which child will develop long term complications. Randomised placebo- controlled trials are needed to determine the effectiveness of antibiotic prophylaxis in precluding intermittent UTI or parenchymal damage. Other threat factors like ethinicity, socioeconomic status, circumcision status in manly children, and their unproductive relationship with UTI should be studied. Parents must be councelled regarding the significance of acceptable fluid input, restroom training and consequences of constipation.

V. CONCLUSION

According to this study, urinary tract infections(UTI) are more current in babies(1 – 12 months) and decline with age. The most typical clinical symptom was fever,

which was followed by dysuria and stomach pain. In all age groups(1 – 60 months),E. coli was the most common bacterium causing UTI, followed by klebsiella and proteus. Colistin had the loftiest overall perceptivity, followed by gentamycin and ceftazidime. After collecting urine for culture, a suspected UTI can be treated empirically with an aminoglycoside or a third generation cephalosporin, still there's a significant frequence of in- vitro resistance to amoxicillin and trimethoprim- sulfamethoxazole. When choosing treatment plans, it's important to keep in mind that the resistance pattern of uropathogens causing urinary tract infections to popular antimicrobial medicines is evolving. Not only will the condition be snappily cured with the right antibiotic tradition, but it'll also prop in precluding the development of rising resistance. When children were submitted to ultrasonography,18.9 of them displayed radiological abnormalities, with cystitis, pyelonephritis, and vesicourethral influx being the most frequent findings. MCU is needed to exclude VUR. 56 children were normal and 8 children have DMSA checkup substantiation of multitudinous scars. It's the duty of every Health care professional to insure that when a child was set up to have UTI, they're given applicable information about the need for treatment, the significance of completing the course of treatment, advice about forestallment, possibility of UTI recreating and understand the need for alert and to seek prompt treatment.

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