



Research Article

Association Between Clinicoetiological Profile and Laboratory, Radiological Findings of Urinary Tract Infection In 1 Month To 15 Years Age Group Children

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ABSTRACT

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Background: Urinary tract infection in paediatric age group results in significant morbidity by producing irreversible damage to renal system that cannot be salvaged if not recognised and treated early. Hence early recognition of subtle symptoms and signs will definitely provide good outcome among patients suffering from urinary tract infection.

Objective: To study the association between Clinicoetiological profile and laboratory, radiological findings Of Urinary Tract Infection In 1 Month To 15 Years Age Group Children.

Methods: This Hospital based cross sectional Observational study was conducted among Children between 1 month -15 year age group of presented in OPD and IPD patient in GIMS, District hospital, Gadag. Duration of study was 2 years from May 2023 to May 2025.

Result: Pain during micturition (45%), vomiting (14.2%), increased urinary frequency (37.1%), dribbling of urine(15.%), urgency (14.6%), constipation (4.2%) were the most common clinical features associated with UTI. High grade fever and fever duration more than 24 hours, were significant predictors of UTI in our study. Moderate blood leukocytosis and higher number of Urine pus cell s significantly correlated with culture positive UTI.

Conclusion: The study also demonstrates a significant association between fever, dysuria, and UTI diagnosis, emphasizing the importance of early clinical suspicion in pediatric cases.

Keywords: Urine Specimen, Urine Analysis, Association, UTI.

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INTRODUCTION

The most common risk factors of UTI are age, gender, renal anomalies, phimosis, vulval anomalies, constipation, worm infestation, cleaning of perineum from back to front, diaper usage and recent catheterization[1]. Urinary complaints are rare in infants and only after 5 years of age, the typical Triad of abdominal pain, vomiting and fever with chills, rigors or supra – pubic pain are common presentations of UTI. The presence of fever has been considered a finding of special importance in infants and young children with UTI, because it is considered a clinical marker of renal parenchymal involvement. Fever with significant bacteriuria and pyuria in children with no other focus of infections must be considered as symptoms of Pyelonephritis. It usually leads to renal scarring. End- stage renal disease [ESRD] is most commonly caused by unexplained renal scarring and is a potent risk factor for subsequent hypertension[6] . Recent studies using renal parenchyma-avid nuclear scans to determine the presence of UTI have revealed that more than 75% of children under 5 years of age have pyelonephritis[2,3] . UTI may be suspected based on symptoms or findings on urine analysis, or both. Urine culture is the confirmatory test. Midstream urine sample and catheterized or supra pubic aspirate urine samples are all several methods to obtain urine samples. If the culture shows >50,000 CFU/ml of a single pathogen (suprapubic or catheter sample) and the urine analysis has pyuria or bacteriuria in a symptomatic child, the child is considered to have a UTI. Nitrate and leukocyte esterase are usually positive in infected urine[4] . Imaging studies like ultrasonogram, voiding cystourethrogram and radionuclide imaging (technetium-99m-labeled dimer captosuccinic acid) after a first episode of UTI are recommended by AAP[5] . Otherwise unexplained renal scarring has been cited as one of

the most common cause of ESRD and is an established risk factor for subsequent hypertension [6]. Thus the high incidence of undiagnosed untreated UTI in young children is a cause for clinical public concern. Up to 60% of the long-term sequelae of UTI in infants and young children appear preventable by urine testing [7]. It is essential to identify urinary tract infections in febrile children and institute timely treatment to reduce the chance for life long morbidity. The present study is undertaken To study the association between Clinicoetiological profile and laboratory, radiological findings Of Urinary Tract Infection In 1 Month To 15 Years Age Group Children.

MATERIAL AND METHODS

This Hospital based cross sectional Observational study was conducted among Children between 1 month -15 year age group of presented in OPD and IPD patient in GIMS, District hospital, Gadag. Duration of study was 2 years from May 2023 to May 2025.

Sample size calculation:- based on Kaina Bhonsle, Alka Vyas, Harish Vyas study.

$$\begin{aligned}
 P &= 62.4 \\
 q &= 37.6 \\
 d &= 10\% \text{ of prevalence} \\
 n &= 4 \times pq \div D^2 = 4 \times 62.4 \times 37.6 \div (6.24)^2 \\
 n &= 231
 \end{aligned}$$

Collection of urine for culture:

The specimen for urine will be obtained carefully to prevent contamination by commensal flora, especially in females. A clean- catch mid stream specimen collected in children. Urine specimen can also collected by temporary transurethral catheterization or from a bag applied to the perineum. In children with indwelling catheters urine aspirated by supra pubic aspiration. For all children who are full filling inclusion criteria, a detailed history, general examination and system examination done. Urine analysis by dipstick test, microscopy and culture of the clean catch mid stream urine specimen done and the growth pattern of organisms and their susceptibility pattern to antibiotics determined. Radiological findings determined.

RESULTS

The cross tabulation of age categories and sex shows that out of 240 participants, 159 (66.3%) were female and 81 (33.8%) were male, indicating a higher prevalence of cases among females. In the less than 1-year category, the distribution was relatively more in male (14 males,11 females). However, in the 1-5 years and 5-10 years age groups, there was a higher number of females (34 vs. 37 males and 63 vs. 27 males, respectively), with the difference becoming more pronounced in the 10-15 years group (49 females vs. only 5 males). This trend suggests a higher susceptibility to the studied condition among females, particularly in older age groups.

Association Between Diagnosis and Fever

The analysis shows a significant association between fever and different UTI diagnoses ($\chi^2 = 24.777$, $p = 0.010$). Among 205 patients with fever, the majority were diagnosed with simple UTI (63.4%) and complicated UTI (32.2%), while recurrent UTI and nephrotic/nephritic syndromes were less common. In contrast, fever was absent in 35 patients (14.6%), most of whom had simple UTI (80.0%). Notably, all cases of AGN with UTI and recurrent UTI presented with fever. The statistically significant p-value (<0.05) suggests that fever is more commonly associated with complicated and recurrent UTIs, indicating a potential marker of severity in these conditions.

Table 1: Association Between Diagnosis and Fever

DIAGNOSIS * FEVER		FEVER		Total
		No	Yes	
	COMPLICATED UTI	4	66	70
	COMPLICATED UTI with B/L HUN.	2	0	2
	NEPHRITIC SYNDROME	1	2	3
	WIT			
	H UTI			
	NEPHROTIC SYNDROME WITH UTI	0	1	1
	RECURRENT UTI	0	6	6

	SIMPLE UTI	28	130	158
Total		35	205	240
Pearson Chi-Square=24.777, p-value=0.010				

Association Between Diagnosis and Vomiting

The analysis indicates no significant association between vomiting and different UTI diagnoses ($\chi^2 = 4.235$, $p = 0.645$). Among 34 patients (14.2%) who reported vomiting, the majority had simple UTI (58.8%) and complicated UTI (41.2%), while none of the patients with recurrent UTI, nephritic syndrome, or complicated UTI with bilateral hydronephrosis reported vomiting. The majority of patients without vomiting (85.8%) had simple UTI (67.0%) or complicated UTI (27.2%). The high p-value (>0.05) suggests that vomiting is not significantly associated with any specific UTI diagnosis, indicating it may not be a distinguishing symptom for severity or type of UTI in this study population.

Association Between Diagnosis and Dysuria

The analysis reveals a significant association between dysuria and different UTI diagnoses ($\chi^2 = 19.266$, $p = 0.004$). Among the 108 patients (45.0%) who reported dysuria, the majority had simple UTI (72.2%) and complicated UTI (25.0%), with smaller proportions in other diagnoses. Notably, 78 out of 158 (49.4%) simple UTI cases reported dysuria, compared to 27 out of 70 (38.6%) complicated UTI cases. The significant p-value (<0.05) suggests that dysuria is a prevalent symptom among UTI patients, particularly those with simple and complicated UTI. However, its absence in some cases indicates that UTI can present with varying clinical symptoms.

Association Between Diagnosis and Urinary Retention

The analysis of urinary retention across different UTI diagnoses shows no statistically significant association ($\chi^2 = 3.909$, $p = 0.689$). Among the 42 patients (17.5%) who experienced urinary retention, the highest proportion was observed in complicated UTI (22 out of 70; 31.4%) and simple UTI (18 out of 158; 11.4%). Other diagnoses had very few or no cases of retention. The high p-value (>0.05) indicates that urinary retention is not strongly linked to any specific diagnosis, suggesting that while it may occur in some UTI cases, it is not a defining characteristic of a particular type of UTI.

Association Between Diagnosis and Urinary Urgency

The analysis of urinary urgency across different UTI diagnoses shows no statistically significant association ($\chi^2 = 3.634$, $p = 0.726$). Out of 240 patients, 35 (14.6%) reported urgency, with the highest proportion seen in complicated UTI (14 out of 70; 20%) and simple UTI (21 out of 158; 13.3%). Other diagnoses showed no reported cases of urgency. The high p-value (>0.05) suggests that urinary urgency is not significantly linked to any specific diagnosis, implying that while urgency may be present in some cases, it does not serve as a distinguishing symptom for different types of UTI.

Association Between Diagnosis and Urinary Dribbling

The analysis of urinary dribbling across different UTI diagnoses shows no statistically significant association ($\chi^2 = 2.346$, $p = 0.885$). Out of 240 patients, 36 (15%) reported dribbling, with the highest proportion observed in complicated UTI (14 out of 70; 20%) and simple UTI (22 out of 158; 13.9%). Other diagnoses showed no reported cases of dribbling. The high p-value (>0.05) suggests that urinary dribbling is not significantly linked to any specific diagnosis, indicating that while some patients experience dribbling, it does not serve as a distinguishing feature of any particular UTI.

Association Between Diagnosis and Failure to Thrive

The analysis of failure to thrive (FTT) across different UTI diagnoses reveals no statistically significant association ($\chi^2 = 0.552$, $p = 0.997$). Among 240 patients, only 16 (6.7%) exhibited FTT, with cases distributed among complicated UTI (7 out of 70; 10%) and simple UTI (9 out of 158; 5.7%). Other diagnoses showed no reported cases of FTT. The high p-value (>0.05) suggests that failure to thrive is not significantly linked to any specific UTI diagnosis, indicating that while some patients with UTI may present with FTT, it does not appear to be a defining characteristic of any particular UTI category.

Association Between Diagnosis and Constipation

The analysis of constipation in relation to UTI diagnosis shows no statistically significant association ($\chi^2 = 2.992$, $p = 0.810$). Out of 240 patients, only 10 (4.2%) reported constipation, with simple UTI accounting for 7 cases (4.4%) and complicated UTI for 3 cases (4.3%). Other diagnoses showed no reported cases of constipation. The high p-value (>0.05) suggests that constipation is not significantly associated with any specific UTI diagnosis, indicating that while constipation may be present in some UTI patients, it does not appear to be a defining or strongly correlated symptom.

Association Between Diagnosis and Instrumentation

The analysis of instrumentation in relation to UTI diagnosis indicates a borderline statistical significance ($\chi^2 = 12.552$, $p = 0.051$). Out of 240 patients, 12 (5.0%) had a history of instrumentation, with complicated UTI (6 cases, 8.6%) and simple UTI (6 cases, 3.8%) being the most affected categories. Other diagnoses had no reported cases of instrumentation. Although the p-value is close to 0.05, it does not reach conventional statistical significance, suggesting a potential but

inconclusive association between instrumentation and UTI diagnosis. Further study with a larger sample size may clarify this relationship.

Association Between Diagnosis and Abdominal Pain

The analysis of abdominal pain in relation to UTI diagnosis reveals no significant association ($\chi^2 = 0.905$, $p = 0.989$). Among 240 patients, 97 (40.4%) reported abdominal pain, with complicated UTI (20 cases, 28.6%) and simple UTI (70 cases, 44.3%) being the most affected groups. Other diagnoses had lower occurrences. Since the p-value is much greater than 0.05, this indicates no statistically significant relationship between UTI diagnosis and the presence of abdominal pain in this study population

Association Between Diagnosis and Loss of Appetite

The analysis of loss of appetite in relation to UTI diagnosis shows no statistically significant association ($\chi^2 = 11.181$, $p = 0.083$). Among the 240 patients, only 16 (6.7%) reported loss of appetite, with complicated UTI (5 cases, 7.1%) and simple UTI (11 cases, 7%) being the most affected groups. Other diagnoses had no cases of loss of appetite. Since the p-value is greater than 0.05, this suggests that there is no strong evidence of a relationship between UTI diagnosis and loss of appetite in this study population.

Association Between Diagnosis and Urinary Frequency

The analysis of urinary frequency in relation to UTI diagnosis reveals a statistically significant association ($\chi^2 = 26.247$, $p = 0.000$). Among 240 patients, 89 (37.1%) experienced increased urinary frequency, with the highest prevalence in simple UTI (54 cases, 34.2%) and complicated UTI (26 cases, 37.1%). Other diagnoses, such as recurrent UTI and nephrotic/nephritic syndrome, had fewer cases. Since the p-value is < 0.05 , the data suggest a significant relationship between UTI diagnosis and increased urinary frequency, indicating that patients with UTIs are more likely to experience this symptom.

Association Between Diagnosis and Pyuria

The analysis of pyuria (presence of pus cells in urine) in relation to UTI diagnosis shows no statistically significant association ($\chi^2 = 7.738$, $p = 0.258$). Among

240 patients, only 14 (5.8%) exhibited pyuria, with the highest occurrences in complicated UTI (9 cases, 12.9%) and simple UTI (4 cases, 2.5%). Other diagnoses had minimal to no cases of pyuria. Since the p-value is > 0.05 , the data suggest no significant relationship between UTI diagnosis and the presence of pyuria, indicating that pyuria may not be a reliable distinguishing feature among different types of UTI in this population.

Table 2 : Association Between Diagnosis and Pyuria

DIAGNOSIS * PYURIA		PYURIA		Total
		No	Yes	
	COMPLICATED UTI	61	9	70
	COMPLICATED UTI with B/L HUN.	2	0	2
	NEPHRITIC SYNDROME WIT	3	0	3
	H UTI			
	NEPHROTIC SYNDROME WIT	0	1	1
	H UTI			
	RECURRENT UTI	6	0	6
	SIMPLE UTI	154	4	158
Total		226	14	240
Pearson Chi-Square=7.738, p-value=0.258				

Association Between Diagnosis and Poor Stream

The analysis of poor urinary stream in relation to UTI diagnosis reveals a statistically significant association ($\chi^2 = 15.910$, $p = 0.014$). Among 240 patients, 39 (16.3%) experienced poor stream, with the highest proportion in simple UTI (28 cases, 17.7%) and complicated UTI (10 cases, 14.3%). Other diagnoses had minimal to no cases of poor stream. Since the p-value is < 0.05 , this suggests that poor urinary stream is significantly associated with UTI diagnosis, particularly in patients with simple and complicated UTI. This finding highlights the importance of considering urinary flow symptoms

when evaluating and managing UTI cases.

Association Between Diagnosis and Flank Pain

The analysis of flank pain in relation to UTI diagnosis demonstrates a highly significant association ($\chi^2 = 70.760, p = 0.000$). Among the 240 patients, 21 (8.75%) reported flank pain, with the majority occurring in simple UTI (18 cases, 11.4%), followed by complicated UTI (2 cases, 2.9%), and nephrotic syndrome with UTI (1 case, 100%). Other diagnoses had no reported cases of flank pain. Since the p-value is

< 0.001 , the findings strongly suggest that flank pain is significantly associated with UTI, particularly simple UTIs. This emphasizes the clinical importance of assessing flank pain in UTI patients, as it may indicate underlying complications.

Association Between Diagnosis and Hematuria

The analysis of hematuria across different UTI diagnoses shows a highly significant association ($\chi^2 = 70.760, p = 0.000$). Among 240 patients, 10 (4.2%) presented with hematuria, with the highest occurrence in simple UTI (6 cases, 3.8%), followed by acute glomerulonephritis (AGN) with UTI (2 cases, 100%), and nephritic syndrome with UTI (1 case, 100%). Hematuria was rare in complicated UTI (1 case, 1.4%) and absent in recurrent UTI. Since the p-value is < 0.001 , these results indicate a strong correlation between hematuria and specific UTI subtypes, particularly AGN or nephritic syndrome. This finding highlights the need for further evaluation of hematuria in UTI patients, as it may indicate underlying renal pathology or more severe infections.

Association Between Diagnosis and Diarrhea

The analysis of diarrhea occurrence among different UTI diagnoses reveals no significant association ($\chi^2 = 1.856, p = 0.932$). Among 240 patients, only 25 (10.4%) reported diarrhea, with the highest occurrence in simple UTI (16 cases, 10.1%) and complicated UTI (9 cases, 12.8%). Other diagnoses, including AGN with UTI, nephritic syndrome, and recurrent UTI, had no reported cases of diarrhea. Given the high p-value (>0.05), there is no statistically significant correlation between UTI diagnosis and diarrhea, suggesting that diarrhea is likely an incidental symptom rather than a defining feature of UTI in this population.

Association Between Diagnosis and History of Previous UTI Episodes

The analysis of history of previous UTI episodes among different diagnoses shows a statistically significant association ($\chi^2 = 94.633, p = 0.008$). Among 237 patients, only 17 (7.2%) reported a previous episode of UTI. As expected, the highest proportion was found in recurrent UTI cases (6/6, 100%), while complicated UTI and simple UTI cases had a small number of patients with previous episodes (5 cases each, 7.2% and 3.2%, respectively). The absence of previous episodes in AGN with UTI and nephritic syndrome groups further supports the specificity of recurrent UTI history to certain diagnostic categories. The highly significant p-value ($p < 0.05$) suggests that history of previous UTI episodes is strongly correlated with certain UTI diagnoses, particularly recurrent and complicated UTIs.

Table 3: Association Between Diagnosis and History of Previous UTI Episodes

DIAGNOSIS * H/O PREVIOUS EPISODE				
		H/O PREVIOUS EPISODE		Total
		No	Yes	
	COMPLICATED UTI	64	5	69
	NEPHRITIC SYNDROME WITH UTI	3	0	3
	NEPHROTIC SYNDROME WITH UTI	0	1	1
	RECURRENT UTI	0	6	6
	SIMPLE UTI	153	5	158
Total		220	17	237
Pearson Chi-Square=94.633,p-value=0.008				

Association Between Diagnosis and Number of Previous UTI Episodes

The relationship between diagnosis and the number of previous UTI episodes is highly statistically significant ($\chi^2 = 222.711, p = 0.000$). Out of 240 patients, 220 (91.7%) had no previous UTI episodes, while 20 (8.3%) had at least one prior episode. The majority of recurrent UTI cases (4/6 with one episode, 2/6 with two episodes) and some complicated

UTI cases (6/70, 8.6%) reported prior infections. No patients with AGN or nephritic syndrome, or simple UTI had multiple previous episodes, further confirming the recurrent nature of UTIs in certain diagnostic groups. The highly significant p-value suggests that the number of previous UTI episodes is strongly linked to specific diagnoses, particularly recurrent and complicated UTIs.

Table 4: Association Between Diagnosis and Number of Previous UTI Episodes

DIAGNOSIS * NO OF PREVIOUS EPISODE						
		NO OF PREVIOUS EPISODE				Total
		No	Yes	2	3	
	COMPLICATED UTI	64	5	0	1	70
	COMPLICATED UTI with B/L HUN.	0	0	2	0	2
	NEPHRITIC SYNDROME WITH UTI	3	0	0	0	3
	NEPHROTIC SYNDROME WITH UTI	0	0	1	0	1
	RECURRENT UTI	0	4	2	0	6
	SIMPLE UTI	153	5	0	0	158
Total		220	14	5	1	240
Pearson Chi-Square=222.711, p-value=0.000						

Association Between Sex and Urine Culture Results

The urine culture results indicate that 83 cases (34.6%) were culture-positive, while 157 cases (65.4%) showed no bacterial growth. Among females, 61 out of 159 (38.4%) had a positive culture, whereas 22 out of 81 males (27.2%) had a positive culture. Although a higher percentage of females had positive cultures compared to males, the Pearson Chi-Square test ($\chi^2 = 2.978$, $p = 0.084$) suggests that this difference is not statistically significant ($p > 0.05$). This indicates that sex does not have a significant impact on urine culture positivity in this study population.

Table 5 : Association Between Sex and Urine Culture Results

CULTURE * SEX				
		SEX		Total
		F	M	
CULTURE	Negative	98	59	157
	Positive	61	22	83
Total		159	81	240
Pearson Chi-Square=2.978, p-value=0.084				

Association Between Sex and Organism Isolated in Urine Culture

The distribution of organisms isolated from urine cultures shows that E. coli was the most common pathogen, found in 44 cases (32 in females, 12 in males), followed by Citrobacter (10 cases), Klebsiella (9 cases), and Enterococcus (8 cases). A large proportion of samples (157 cases, 65.4%) showed no bacterial growth. Other organisms, including Proteus, Pseudomonas, Acinetobacter, and Staphylococcus aureus, were less frequently isolated. The Pearson Chi-Square test ($\chi^2 = 8.430$, $p = 0.393$) indicates no statistically significant association between sex and the type of organism isolated ($p > 0.05$), suggesting that both males and females had a similar distribution of bacterial pathogens in urinary tract infections.

Table 6 : Association Between Sex and Organism Isolated in Urine Culture

ORGANISM * SEX				
		SEX		Total
		F	M	
ORGANISM	No growth	98	59	157
	E.COLI.	32	12	44
	Enterococcus	6	2	8
	Klebsiella	7	2	9
	Citrobacter	5	5	10
	Proteus	4	0	4
	Pseudomonas	4	0	4
	Staphylococcus aureus	2	1	3
	Acintobacter	1	0	1
Total		159	81	240
Pearson Chi-Square=8.430, p-value=0.393				

DISCUSSION

Studies have shown that fever in UTIs is often associated with upper urinary tract infections (pyelonephritis), which carry a higher risk of renal complications. The presence of fever in young children should prompt timely urine analysis to rule out UTIs, especially in high-risk groups. Additionally, differentiating between febrile and afebrile UTIs is crucial for guiding appropriate diagnostic and treatment strategies. While febrile UTIs often indicate more severe infections requiring systemic antibiotics, afebrile cases may represent localized lower tract infections that can be managed with targeted therapy. Increase awareness among primary healthcare providers regarding the significance of fever in UTIs can improve early diagnosis and management outcomes. Therefore, fever should remain an essential clinical criterion for suspecting UTIs, particularly in children under five years of age.

Increased urinary frequency is often associated with bladder irritation caused by the infection, and it may sometimes be confused with other conditions like overactive bladder or voiding dysfunction. Retention, though less common, may indicate obstruction or significant inflammation within the urinary tract. These findings highlight the importance of detailed history-taking and age-appropriate symptom assessment in pediatric patients. Educating parents and caregivers on recognizing early urinary symptoms can facilitate timely medical intervention and prevent progression to more severe infections. Additionally, further research is needed to explore the link between urinary symptoms and underlying anatomical abnormalities that may predispose children to recurrent infections.

The increasing antibiotic resistance emphasizes the need for rational antibiotic use and culture-guided therapy. Zhang et al. (2023) [8] recommended local antibiograms to guide empiric therapy, particularly in regions with high resistance rates. Additionally, Alsaywid et al. (2023) [9] highlighted that overuse of broad-spectrum antibiotics can contribute to the emergence of resistant strains, reinforcing the necessity of antimicrobial stewardship programs. The findings of our study support the implementation of targeted antibiotic use policies, encouraging healthcare providers to rely on culture and sensitivity results before prescribing antibiotics. Strengthening routine surveillance and incorporating molecular diagnostic methods could further enhance the detection of resistance patterns, leading to better patient outcomes.

Radiological and Imaging Findings Ultrasound Abnormalities

In our study, 38.8% of children had normal ultrasound findings, while simple cystitis (6.7%) and chronic cystitis with pyelonephritis (1.2%), hydronephrosis (0.8%) were among the notable abnormalities. Kumar et al. (2023) [10] similarly found that 35% of children with recurrent UTIs had abnormal ultrasound findings, particularly renal scarring. The detection of cystitis and hydronephrosis in our study indicates that early radiological evaluation plays a critical role in diagnosing complicated UTIs and preventing long-term sequelae.

Alsaywid et al. (2023) [11] emphasized that early imaging is crucial in patients with recurrent or complicated UTIs to detect structural anomalies, such as vesicoureteral reflux (VUR), which was observed in 1.2% of cases in our study. Landau et al. (2022) found a higher prevalence of VUR (4.3%), suggesting that regional and genetic differences may

influence the incidence. The variability in VUR prevalence may also be due to differences in the criteria used for imaging and diagnosis across studies. Timely detection of VUR is essential, as it is a major contributor to recurrent UTIs and long-term renal damage. The findings of our study highlight the importance of standardized imaging protocols to ensure early identification of structural abnormalities and reduce the risk of renal complications.

CONCLUSION

The study also demonstrates a significant association between fever, dysuria, and UTI diagnosis, emphasizing the importance of early clinical suspicion in pediatric cases. From a public health perspective, the findings advocate for enhanced awareness campaigns focusing on hygiene practices, hydration, and early symptom recognition to reduce UTI incidence among children. School-based educational programs could be instrumental in instilling preventive habits among children, particularly in high-risk age groups. Furthermore, healthcare providers should prioritize routine urine culture testing in suspected UTI cases to ensure accurate diagnosis and effective treatment. Government should also provide nuclear imaging studies to district hospital level.

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