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Research Article

Comparison of Urinalisis in Acute Appendicitis and Perforated Appendicitis on Children Patients in H. Adam Malik General Hospital Medan

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Introduction

Appendicitis in children is a frequent diagnosis of surgical interventions in children in the emergency department, but it is often difficult in establishing diagnosis in children because children are often less cooperative. Delay in diagnosis of appendicitis can cause perforation and peritonitis. Therefore, another method of diagnosis of appendicitis in addition to anamnesis is needed. In a study by Chen Yu, he stated that urinalysis examination can also be used in emergency room to diagnose life-threatening conditions such as appendicitis. So in this study, we analyzed the Nitrates, Ketones, erytrocyte and Leucocyte present in the urinalysis and looked at their correlation with the state of appendicitis in children.

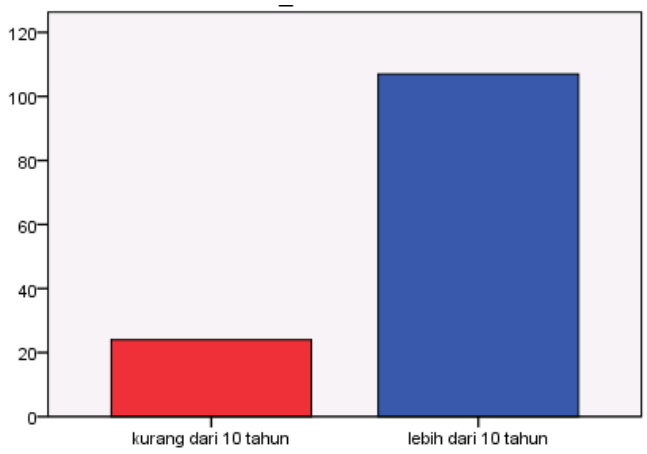
Method

This study was conducted in cross sectional retrospective, in 2016, all pediatric patients who had performed appendectectomy and fulfilled inclusion criteria were taken urinalysis data and we analyzed the nitrates, ketones, erythrocytes and leukocytes in the urine with the incidence of appendicitis in children. These variables is analyzed using the SPSS program.

Results

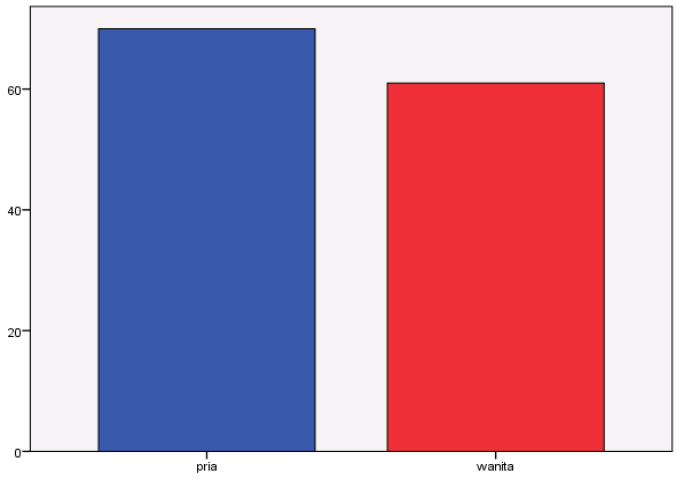
A retrospective study of 131 patients with acute appendicitis (n = 81) and perforated appendicitis (n = 50) who received therapy at the H. Adam Malik General Hospital in 2016 found that children aged less than 10 years were 24 (18.3%) and age group over 10 years was 107 people (81.7%).

Diagram 1. Bar diagram of Children Age



In the research subjects obtained male respondents sex is as much as 70 people (53.4%) while female respondents are 61 people (46.6%).

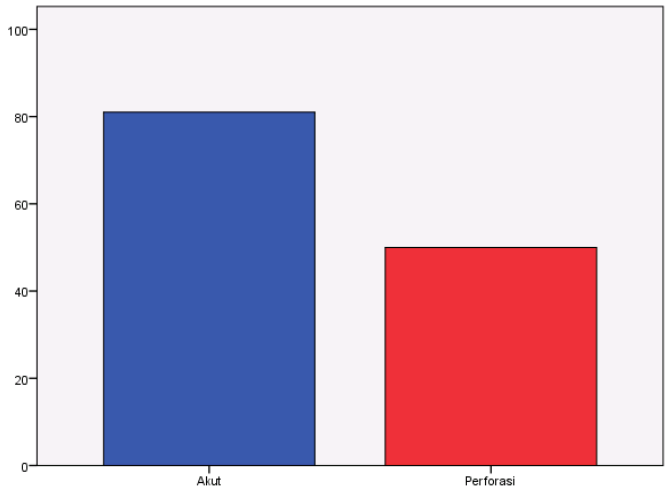
Diagram 2. Bar diagram of Children sex



In the subjects of the study, anatomical pathology was collected from appendix tissue with the distribution of appendicitis patients who participated in the study on the

subjects of acute appendicitis were 81 people (61.8%) while the perforation appendicitis was 51 people (38.2%).

Diagram 3. Bar diagram of anatomic pathotology of appendix



Chi-square test analyzed the relationship between the presence of ketones in urine and the incidence rate of perforated appendicitis.

Table 1. Crosstabulation between Ketones in urin and Type of Appendicitis by Anatomic Pathology

Ketones	Anatomic Pathology		Total	*p-value*	OR
	Acute	Perforated			
Positive	43	34	77	0.092[cs]	0.533
Negative	38	16	54		
Total	81	50	131		

cs = chi square

The result of p0.092 showed that there was no significant relationship between the presence of ketone in urine on the incidence rate of perforated appendicitis with Odds Ratio value less than one also showed no relationship between ketone value with incidence rate of perforated appendicitis.

Chi-square test analyzed the relationship between the presence of nitrate in urine and the incidence rate of perforated appendicitis.

Table 2. Crosstabulation of Nitrate in urine and Type of Appendicitis by Anatomic Pathology

Nitrate	Anatomic Pathology		Total	*p-value*	OR
	Acute	Perforated			
Positive	30	24	54	0.216[cs]	0.637
Negative	51	26	77		
Total	81	50	131		

cs = chi square

The result of p0.216 shows that there is no significant relationship between the presence of nitrate in urine to the incidence rate of perforated appendicitis with the Odds Ratio value less than one also shows no relation between the nitrate value and the appendicid occurrence rate of perforation.

Chi-square test analyzed the relationship between urinary leukocyte level and the incidence rate of perforated appendicitis

Table 3. Crosstabulation of Leukocyte in urine and Type of Appendicitis by Anatomic Pathology

Leukocyte	Anatomic Pathology		Total	Nilai p	OR
	Acute	Perforated			
More than 4 per lpb	6	8	117	0.122[cs]	2.381
Less than 4 per lpb	75	42	14		
Total	81	50	131		

cs = chi square

The result of p0.122 shows that there is no significant correlation between urinary leukocyte level on the incidence rate of perforated appendicitis Fisher-exact test analyzes the relationship between urinary erythrocytes and the incidence rate of perforated appendicitis.

Table 4. Crosstabulation of erytrocyte in urine and Type of Appendicitis by Anatomic Pathology

Eritrocyte	Anatomic Pathology		Total	*p-value*	OR
	Acute	Perforated			
More than 4 per lpb	78	43	121	0.043[fs]	0.236
Less than 4 per lpb	3	7	10		
Total	81	50	131		

fs=fisher –exact test

The result of p0.043 shows that there is a significant difference between urinary erythrocyte level and the rate of occurrence of perforated appendicitis while the Odds Ratio of less than one indicates a weak correlation between urinary erythrocyte level and the incidence rate of perforated appendicitis.

Discussion

From the results obtained in our research, it can be seen that ketone profile has no effect on the incidence rate of perforated appendicitis with the result of p0.092 which shows that there is no significant relationship between the presence of ketone in urine to the incidence rate of perforated appendicitis, the Odds Ratio less than one (0.533) also shows no relationship between the ketone value and the incidence rate of perforated appendicitis. This is slightly different from the Chen et al. study conducted by 2013, stating that there is a relationship between urinalysis and perforated appendicitis. Parameters expressed by Chen et al. causes the incidence of perforated appendicitis are ketones, nitrites, erythrocytes, leukocytes, pH, and specific gravity. In this study we did not analyze specific gravity. Differences in the results of this study may be due to different types of research and confounding factors such as social and economic degrees From the results obtained in our

research, it can be seen that the nitrate profile that does not affect the incidence of perforated appendicitis with the result of p0.216 shows that there is no significant relationship between the presence of nitrate in urine to the incidence rate of appendicitis perforation with the value of Odds Ratio less than one (0.637) also showed no relationship between the nitrate value and the incidence of appendicitis perforation. From the results obtained in our research, it can be seen that only the levels of erythrocytes in the urine that affect the incidence rate of acute appendicitis. which is found to be a significant association in acute appendicitis erythrocytes, since P value = 0.043 (P value <0.05). This is similar to that of Chen et al., conducted by 2013, which suggests that there is a link between urinalysis and appendicitis perforation. Parameters expressed by Chen et al. causing the incidence of perforated appendicitis one of them is erythrocytes in the urine. From the results of bivariate analysis in this study obtained p value of 0.123 (> 0.05). From these results, it can be concluded that statistically, there is no significant relationship between the number of leukocytes in urine with acute appendicitis and perforated appendicitis. This is in contrast to Chen et al.'s study, conducted by 2013, which states that there is a link between urinalysis and perforated appendicitis.

Conclusion

In this study it can be concluded that, In patients with acute appendicitis and perforation there is no increase of meaningful urinalysis results. There is a significant correlation between the increase of erythrocyte amount and the incidence of acute appendicitis and perforation appendicitis at H.Adam Malik General Hospital Medan in 2016. The number of erythrocytes in acute appendicitis patient at RSUP Haji Adam Malik Medan in 2016 is the most common with 59.54% of all cases. The number of erythrocytes in perforated appendicitis patients at RSUP Haji Adam Malik Medan in 2016 was found most at 32.82% of all cases.