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Research Article

**THE IMPACTS OF FASTING IN RAMADAN ON THE AMOUNT
OF RENAL COLIC VISITS TO THE DEPARTMENT OF
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Abstract:

Objective: This study aimed to know the impacts of restriction of fluid & diet strictly in the long hours fasting duration Ramadan on the amount of the renal colic visits & biochemical features of the formation of stones are available with various controversies in the same subject. Main idea of this case study was to evaluate the impact of fasting in Ramadan on the amount of visits of renal colic and results of laboratory among the patients with renal colic complications.

Methodology: This is a prospective case work based on observations. This case work carried out on the patients who got admission in the department of emergency of hospital due to renal colic. The division of the study carried out in two parts as prior Ramadan and during Ramadan. We recorded the all results of laboratory testing and daily values of the air temperature. P value of less than 0.050 was significant for all tests of this case work.

Results: Total one hundred and seventy six patients (89 prior Ramadan and 87 during Ramadan) with complication of renal colic were the part of this case work. In Ramadan, 73.10% (n: 49) patients got admission in first fifteen days of Ramadan and 26.90% (n: 20) patients got admission in the last half duration of Ramadan. Only the density of urine and values of white blood cells in both durations of Ramadan and other than Ramadan were significantly different from one another. The values of hemoglobin, general crystal & triple phosphate crystal in the first fifteen and last fifteen days of Ramadan were with significant disparity.

Conclusion: This case work has displayed that fasting in the month of Ramadan does not have the ability to alter the visits due to renal colic. Additionally, there are some alterations in the urinary metabolites because of fasting but there is still not too much evidence that these alterations can increase the formation of the calculus in the urinary tract.

Keywords: Emergency, Ramadan, urinary, methodology, white blood cells, alterations, admission, evidence, calculus, urinary tract.

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INTRODUCTION:

Renal colic or kidney stone is very frequent complication and responsible for about 0.60% visits in the emergency department [1]. Past research works have displayed that the prevalence of the disease of renal stones changes with the change in season [2]. Particularly, high rates of occurrences are available in the warm months [2, 3]. Some probable causes of high occurrence are also available in this particular literature. Dehydration because of perspiration in one of the main cause which is very frequent in warm months in which high concentration of urine can enhance the danger of the stone formation [4]. The high excretion of the urine calcium in the hot months is another reason for this complication [5]. Low utilization of the liquid is also the cause of acquiring kidney stones and increase in the usage of liquids has the ability to decrease the recurring formation of stones [6].

The period of daily fasting can last fifteen to sixteen hours during summer days. But Ramadan revolves around all four seasons. The hindrance to the diet and fluids in the month of Ramadan can affect the various biochemical features which can enhance the formation of kidney stones. There are very less amount of case works on the impacts of fasting during Ramadan on the occurrence of kidney stones and with different outcomes. The aim of this case work are to evaluate the impacts of Ramadan fasting and alteration in temperature on the amount of the visits in the emergency department due to the disease of renal colic as well as to find out the disparity in the results of urine analysis and biochemical parameters in the month and after Ramadan.

METHODOLOGY:

This was a prospective case work based on observations conducted in the department of emergency from May 2018 to July 2018 for a period of complete three months. The division of the study period carried out in two groups during Ramadan and period other than Ramadan. We recorded the temperature every day in this study period. The ethical

committee of the hospital gave the permission for the conduction of this case work. Every patient gave written consent to participate in the case work. Patients who got admission in emergency department, having minimum eighteen year of age with disease of renal colic were part of this case work. Patients below eighteen year of age or not willing to participate in the case work or suffering from any other serious complication other than renal colic were not the part of this case work. When the comparison of the results of urine analysis and biochemical factors of Ramadan and after Ramadan carried out we excluded the patients who were not fasting regularly.

The clinical judgement of the doctor confirmed the diagnosis of the disease. Symptoms of this very complication are start of colicky pain, nausea, urgency, vomiting & dysuria. We performed complete count of blood, biochemical tests & spot urine test for every patient. Computed tomography carried out for those patients who were without definite disease of renal colic. SPSS V.15 was in use for the analysis of the collected information. We used Shapiro-Wilk test for the evaluation of various variables.

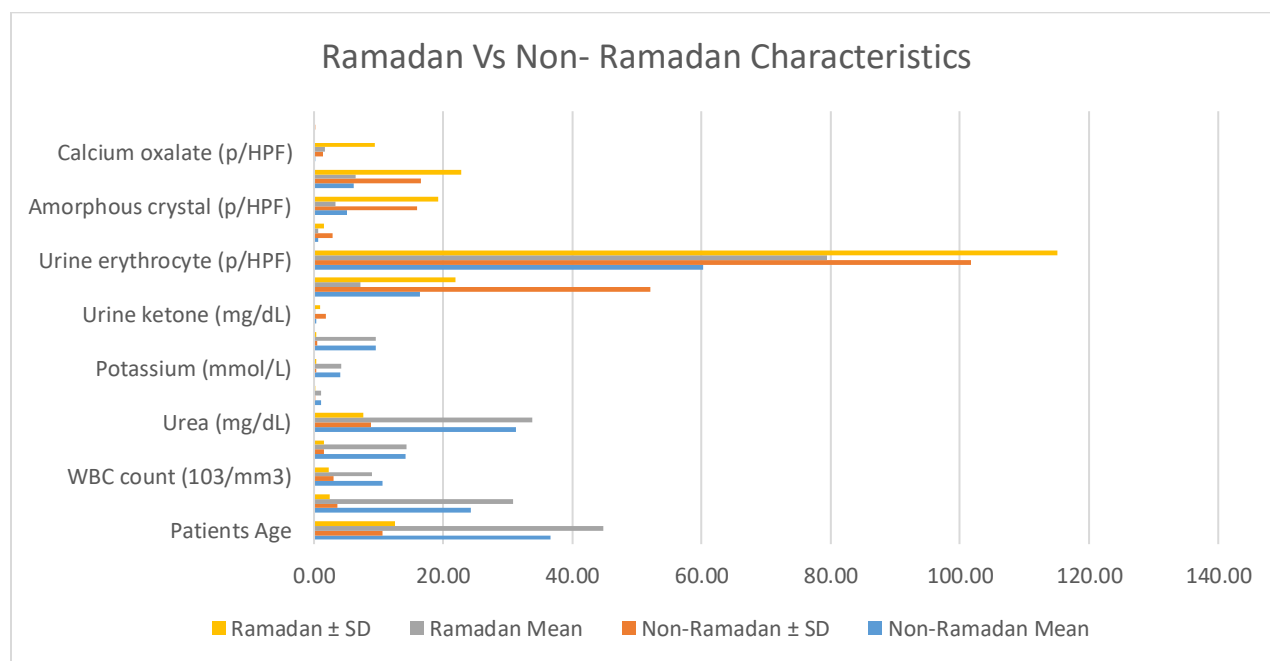
RESULTS:

There were one hundred and seventy six patients in which 87 in Ramadan and 89 in non-Ramadan period were the part of this case work due to renal colic complication. The average age of the patients was 40.470 ± 12.320 years. One hundred and twelve (63.60%) were males and sixty four (36.40%) were females. The average temperature of air in non-Ramadan & during Ramadan was 24.260 ± 3.550 °C & 30.760 ± 2.42 °C correspondingly. There was much important difference in the temperature of both periods. The temperature in the month of Ramadan was very as compared to the other period but this factor did not increase the visits sue to disease of renal colic. The average age of finally remaining sixty seven patients who were fasting regularly was 44.75 ± 12.5 years. Total 65.70% (n: 44) patients out of 67 were the patients were male.

Table-I: Demographic and laboratory analysis of patients admitted at Ramadan and Non-Ramadan.

Analysis	Non-Ramadan		Ramadan		P value
	Mean	± SD	Mean	± SD	
Patients Age	36.57	10.57	44.75	12.50	<0.0010
Temperature (C ⁰)	24.26	3.55	30.76	2.42	<0.0010
WBC count (103/mm ³)	10.60	3.00	8.90	2.30	0.0010
Hemoglobin (g/dL)	14.22	1.60	14.38	1.50	0.7000
Urea (mg/dL)	31.26	8.83	33.85	7.56	0.0550
Creatinine (mg/dL)	1.08	0.25	1.06	0.20	0.7800
Sodium (mmol/L)	138.38	2.77	139.42	2.62	0.1700
Potassium (mmol/L)	4.06	0.38	4.14	0.30	0.1500
Calcium (mg/dL)	9.55	0.43	9.56	0.35	0.8900
Urine density (Specific gravity)	1020.79	9.23	1024.93	7.86	0.0040
Urine ketone (mg/dL)	0.39	1.83	0.17	0.87	0.3900
Urine leukocyte (p/HPF)	16.34	52.04	7.15	21.90	0.3400
Urine erythrocyte (p/HPF)	60.29	101.77	79.37	115.03	0.2500
Renal epithelia (p/HPF)	0.71	2.81	0.59	1.54	0.1700
Amorphous crystal (p/HPF)	5.10	16.01	3.34	19.20	0.0400
General crystal (p/HPF)	6.10	16.50	6.45	22.85	0.8000
Calcium oxalate (p/HPF)	0.27	1.37	1.67	9.34	0.0530
Triple phosphate crystal (p/HPF)	0.04	0.24	0.01	0.06	0.9000

WBC: White Blood Cell, HPF: High-Power Field.



The analysis of the urine & blood of the patients showed that only density of urine and values of the

white blood cell in both periods was much different as mentioned in Table-1.

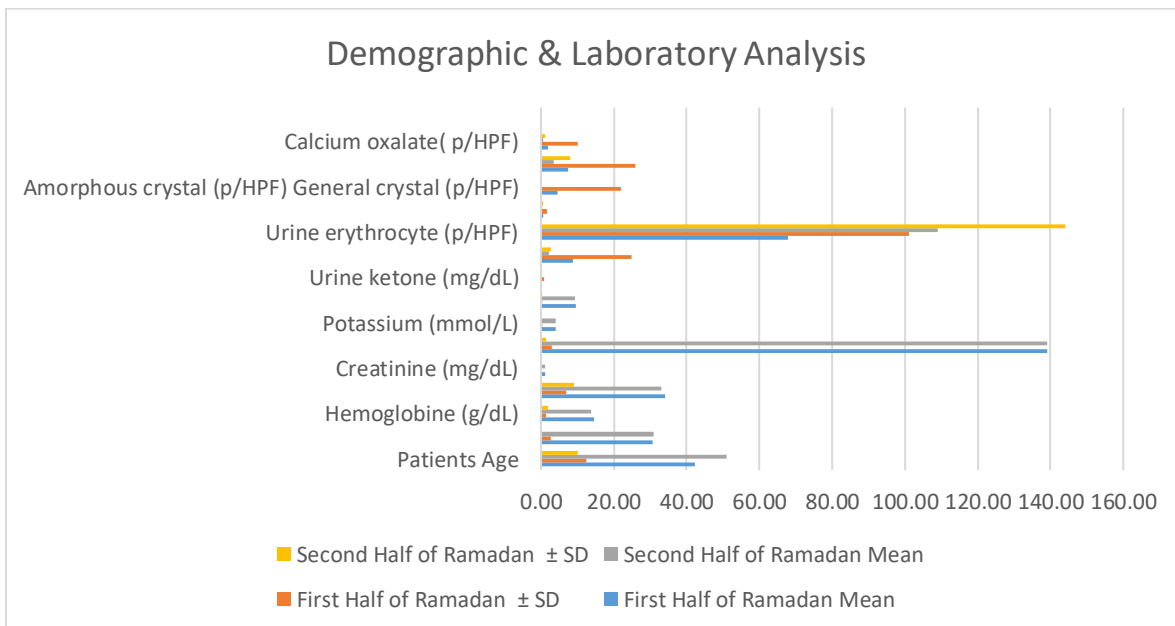
Table-II: Demographic and laboratory analysis of patients admitted at different periods of Ramadan Months.

Analysis	First Half of Ramadan		Second Half of		P value
	Mean	± SD	Mean	± SD	
Patients Age	42.38	12.36	51.00	10.00	0.007
Temperature (C ⁰)	30.69	2.80	30.94	0.20	0.400
WBC count (103/mm ³)	8944.00	2444.00	9144.00	1975.00	0.700
Hemoglobin (g/dL)	14.60	1.40	13.70	1.90	0.040
Urea (mg/dL)	34.16	6.90	33.00	9.10	0.200
Creatinine (mg/dL)	1.07	0.18	1.03	0.22	0.400
Sodium (mmol/L)	139.00	2.90	139.00	1.30	0.500
Potassium (mmol/L)	4.13	0.30	4.13	0.10	0.400
Calcium (mg/dL)	9.50	0.30	9.40	0.30	0.200
Urine density (Specific gravity)	1024.00	8.50	1027.00	4.90	0.400
Urine ketone (mg/dL)	0.20	0.90	0.08	0.35	0.800
Urine leukocyte (p/HPF)	8.90	25.00	2.20	2.60	0.700
Urine erythrocyte (p/HPF)	68.00	101.00	109.00	144.00	0.100
Renal epithelia (p/HPF)	0.70	1.70	0.27	0.69	0.100
Amorphous crystal (p/HPF) General crystal (p/HPF)	4.50	22.00	0.00	0.00	0.300
	7.40	26.00	3.60	7.90	0.030
Calcium oxalate(p/HPF)	2.00	10.00	0.50	1.10	0.300
Triple phosphate crystal(p/HPF)	0.01	0.06	0.03	0.08	0.030

WBC: White Blood Cell, HPF: High-Power Field.

When we analyzed the results of blood & urine in first half and later half patients in the Ramadan important disparity was available in the hemoglobin, values of

triple phosphate crystal & general crystal as mentioned in Table-2.



DISCUSSION:

The amount of the renal colic visits were same in both periods due to the restriction of diet and fluid for heavy times in the fasting period of Ramadan. But there are controversial results according to past case works. Al-Hadramy concluded that high rates of admission due to renal colic were available in the months of summer. The frequency of the admissions in the month of Ramadan were similar as compared to the other months [7]. Basiri [3] interrogated the impact of Ramadan on the amount of the visits due to renal colic and he discovered that no important disparity between rates of patients disease of renal colic in both periods when the temperature were similar. Al-Hadramy have concluded that high rate of patients with renal colic disease in the months of summer [7].

In opposition to other case works, Abdulreza concluded that amount of the admission due to renal colic in the department of emergency in the first half month of Ramadan were much high in comparison with the last two weeks in the month of Ramadan [8]. Abdulreza in his case work [8] concluded that there was an important increase in the amounts of the visits due to renal colic in the 2nd half duration of Ramadan. There are very few amount of the case works on the tests of blood as well as urine linked with the month of Ramadan. Zghal [9] in his case work aimed to assess the impact of liquid and restriction of the diet in the month of Ramadan on the biochemical features of the formation of stones. Miladipour [10] conducted his case work on the impacts of the fasting in Ramadan on the factors of urine. He was unable to find an important increase in the super saturation of the calcium oxalate in the fasting period [10].

There are some limitations of this case work as the values of temperature were much high in the month of Ramadan as compared to the other period, due to this disparity we have the expectation of high amount of renal colic visits but these visits were same in both period. We did not perform the computed tomography of abdomen cavity for all the patients and gold standard method was not in use for the diagnosis of the renal colic judgement.

CONCLUSION:

The results of this case work concluded that fasting in the month of Ramadan is not a risk factor in the increase of the visits due to renal colic. Fasting is the reason of some alterations in the metabolites of urine

that have various impacts on the formation of calculus. But there are not much proofs for this identification that these alterations can cause the high formation of the urinary calculus. There is requirement of future case works to investigate these features for consolidated conclusion.

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