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HIGH QUANTITY OF DIABETIC KETOACIDOSIS PATIENTS DURING SUMMER SEASON

Dr Shamsila Waqar, Dr Iqra Hafeez, Dr Arika Waqar
Services Hospital Lahore

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Abstract:
Objectives: *The objective of this study is to review the patients of DKA (diabetic ketoacidosis) & search the probable prompting features. This study carried out after the quantity of patients admitted with DKA in Services Hospital Lahore in the season of summer.*
Methodology: *This was a retrograde research work going through the record of all the patients admitted in the hospital suffering from diabetic ketoacidosis in the last summer season. The duration of the research was from June to August 2018. We searched for prompting features for diabetic ketoacidosis.*
Results: *About 37 patients suffering from diabetes got admission in the last summer season due to diabetic ketoacidosis as compared to the only 3 patients who got admission due to this problem in past three months with the same diagnosis.*
Conclusion: *The occurrence of the diabetic ketoacidosis in the summer season enhanced meaningfully because of medical state, no availability of compliance because of alterations in the pattern of sleep in summer holidays & stress of life.*
KEY WORDS: *Morbidity, Diabetes, Spectrum, Bicarbonate, Summer, Patients, Diagnosis.*

Corresponding author:
Dr. Shamsila Waqar,
Services Hospital Lahore

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INTRODUCTION:

Diabetic ketoacidosis appears as one of the severe conditions in the spectrum of the diabetes. Diabetic ketoacidosis is a vital reason of mortality & morbidity in the patients suffering from diabetes [1, 2]. There is an estimation of per year occurrence of diabetic ketoacidosis from communities-based research works is

A range from four to eight episodes per thousand patient admission who were suffering from diabetes [3]. Diabetic ketoacidosis is a result of complete or relative deficiency of the insulin causing hyperglycemia & a gathering of ketone in the blood plasma, with following acidosis of metabolism. The categorization of the diabetic ketoacidosis carried out according to the seriousness of acidosis, with less severe diabetic ketoacidosis demarcated as a venous pH greater than >7.30 & bicarbonate greater than 15.0 mmol/l; medium/moderate diabetic ketoacidosis as a pH 7.10 to 7.20 with a bicarbonate from 5.0 to 15.0 mmol/l; & severe diabetic ketoacidosis as a pH less than 7.10 and bicarbonate less than 5.0. Diabetic ketoacidosis is a condition of highly threatening for life.

In USA, the total rate of mortality among children with diabetic ketoacidosis is from 1% to 3% [4]. In Nishtar Medical College, we were receiving 4 to 6 patients per month having diabetic ketoacidosis. In the total summer of 2018 when it was the report of higher occurrence of diabetic ketoacidosis. The main of this study was to find out the prompting features diabetic ketoacidosis in the summer season. From March to May of 2018, only thirteen patients visited the hospital suffering from diabetic ketoacidosis. In our country, summer season is long as compared to the other countries of the world. A lot of activities took place as long travelling & activities in the water especially swimming pools. During the visits in summer season, the patients of the diabetes left care in eating the foods with full of fat and proteins. This cause the forgetting of the healthy food which causes the downfall because of this disease. All these factors were under consideration for retrospective examination.

METHODOLOGY:

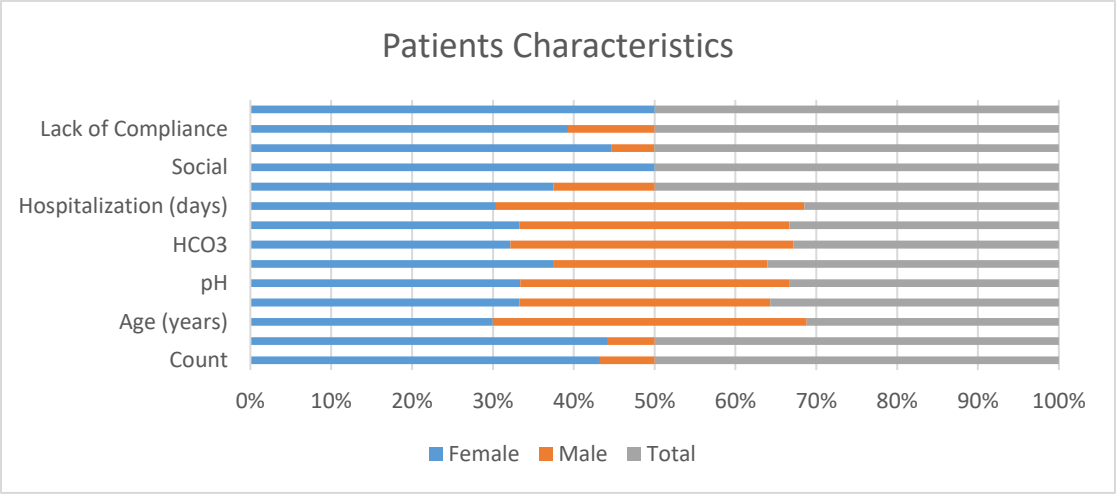
The patients of diabetic ketoacidosis got admission in the medical ward of Services Hospital Lahore from June to August of 2018. The information collected from those patients reviewed to reach a conclusion. The analysis of the information as their gender, age of the patient, the start of the disease & treatment types they underwent carried out. We searched for every probable prompting feature in each and every case.

The demographical data of the patients as means, CI (Confidence Interval) & SD (Standard Deviation) was under consideration. Proposed features testing carried out with the use of multinomial test for assessing the disparity among the availability & non availability in the complete population of the study. The laboratory identifiers for diabetic ketoacidosis presented in plane & simple descriptive statistics in collaboration with the multinomial test for extremity levels. This is showing the effect size of seriousness. These levels are depending upon the references range of the blood from every variable [5, 6]. The tests of correlation with the total days spent in the hospital will take place with the laboratory identifiers, the age of the patient & other demographical data of the patients.

RESULTS:

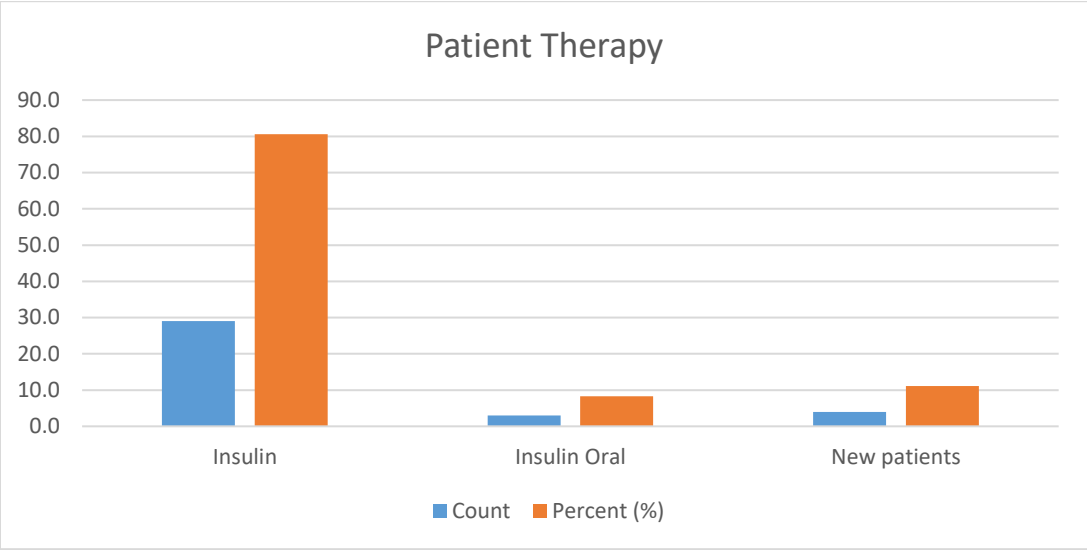
A sum of 37 patients was the part of this research work. There was a great statistical significance of the female patients. The average age of the patients was 23.920 ± 9.980 years. The distribution of the age of patients is available in the histogram of age (Figure-1). Most of the patients were from female sex under the age of 30 years & this is the ideal age of bearing the child with full of fertility (Table-1).

Table-I: Patient Demographics and Laboratory Results				
		Female	Male	Total
Count		32.0	5.0	37.0
Diabetes Mellitus Type	Type 1 (%)	81.10	10.80	91.90
	Type 2 (%)	5.40	2.70	8.10
Age (years)	Mean	23	29.8	23.92
Disease Onset(years)	Mean	6.630	6.180	7.110
pH	Mean	7.200	7.180	7.200
$p^{CO}2$	Mean	5.990	4.210	5.750
$^{HCO}3$	Mean	11.010	11.980	11.230
Hb A1C	Mean	11.060	11.070	11.060
Hospitalization (days)	Mean	4.780	6.000	4.950
Financial	+ve (%)	16.20	5.40	21.60
Social	+ve (%)	21.60	0.00	21.60
Medical	+ve (%)	45.90	5.40	51.40
Lack of Compliance	+ve (%)	29.70	8.10	37.80
Stress	+ve (%)	37.80	0.00	37.80



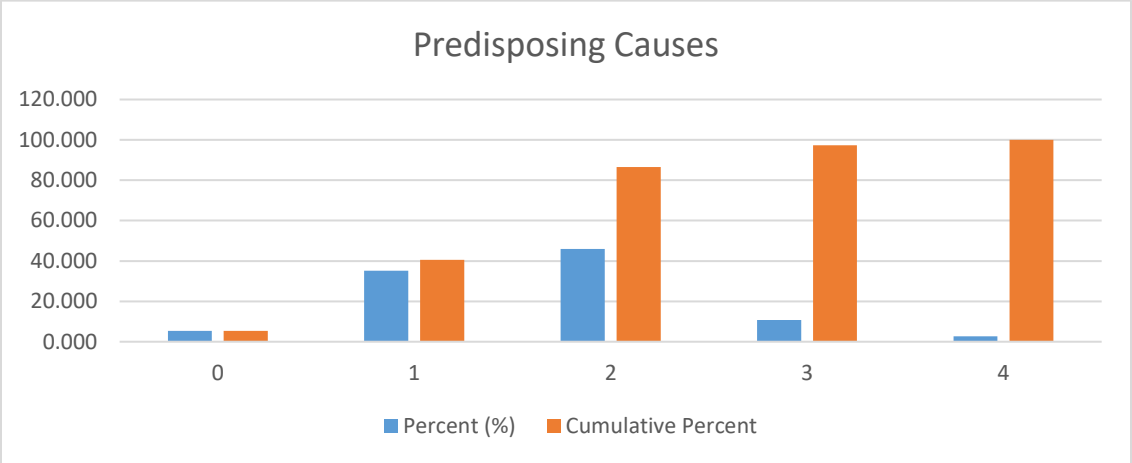
The level of bicarbonate 5.10% patients was greater than twenty three mmol/L (P-value greater than 0.00001), the slope estimation was 0.13430. The inferior limit of 95% CI for slope is 0.02420 & higher limit is 0.24430. The estimation for intercept is 1.73450. The inferior limit of ninety five percent CI for intercept is -1.11250 & the higher limit is 4.58150. (Slope P-value 0.01820) level of pCO2 in 13.510% patients was greater than 5.90 kPa (P-value greater than 0.00001) & 2.70% patients found greater than 7.450 in the values of pH (P-value greater than 0.00001). We found an association among the age of patients and duration of the stay in the hospital. This association displayed an important increase in the days of hospitalization with the increase of the days. Figure-2 shows the analysis of linear regression for hospitalization stay & age of the patient. There is no feasibility for the establishment of the any association between hospitalization stay & variables from laboratory. There is no association sex prompting reasons vs stay in hospital or laboratory identifiers. The treatment of all the patients performed with the help of insulin except 4 new patients (Table-2).

Table-II: Patient Therapy		
Treatment	Count	Percent (%)
Insulin	29.0	80.560
Insulin Oral	3.0	8.330
New patients	4.0	11.110



The assessment of prompting features is economic status, social status, medical condition, compliance deficiency and stress carried out. The greatest occurrence was of clinical anomalies but these issues were not statistical significant. Detailed analyses for prompting features displayed that 45.950% patients found with combination of 2 prompting factors (P-value 0.0000140) (Table-3).

Table-III: Predisposing Causes Combinations		
Cumulative Predisposing Causes	Percent (%)	Cumulative Percent
0	5.410	5.410
1	35.140	40.540
2	45.950	86.490
3	10.810	97.300
4	2.700	100.000



DISCUSSION:

DKA is a condition of improper levels of insulin causing high sugar of in blood & gathering of the organic acid & ketones in the plasma of blood. It is very frequent in diabetic ketoacidosis to feel extreme dehydration & important changes in the chemistry of the blood of body. Diabetic ketoacidosis is normally available in those patients who have acquired diabetes type-1. Majority of the patients often are less than twenty-five year of age but this state can happen in any age of the patients suffering from diabetes. Generally speaking, both genders are equally the victim of this disorder [7]. The collected information had displayed the low effect of the involvement of the social features which was the past expectations. The major prompting feature of this disorder was clinical reasons followed by deficiency of compliance & stress of life style [9]. There is no statistically significance of these described factors and this needs research works on high population strength to confirm the significance of these factors [10-11].

The amalgamation of greater than one feature has the ability to change the idea of the world. Most of the patients have mixture of more than 2 reasons of diabetic ketoacidosis [12]. Another vital information is that most of the suffering population in this study was women. Its mean that in the period of summer season females have a lot commitment from their family resulting greater amount of stress which cause the vexing of their clinical state if they are also looking after their children [13-14]. The seriousness of diabetic ketoacidosis increases with the increase in the age & from the expected commitments of the family members.

There is one amazing point that financial reason is also a vital issue & it has a less record but it has provided greater significance. Economic reasons are paying to some degree might have been anticipated prior the retroactive assessment [15]. The outcome of this research work put light on the significance of the education of the patient. There should be an improvement in the qualification of the females to keep an eye to check their complication of diabetes [16]. At the time of the vacations in schools during summer season, there are many commitments for the mothers. So, there is a need for them to look after their selves as well additionally at the same time while performing their duties.

CONCLUSION:

This research work concluded that the activities of our population in the holidays of the summer vacation are dangerous if patients have the ability to administer the prompting aspects or the reasons of the diabetic ketoacidosis. The prominent factors for diabetic ketoacidosis during the summer season are clinical condition of the patients, nonexistence of compliance & stress of life style.

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