

## Blood Ketones as a Point of Care Testing in Paediatric Emergencies

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**Abstract :** Introduction: Ketones are the end products of fatty acid metabolism and a source of energy for vital organs such as the brain, heart and skeletal muscles. Ketones are produced in excess when glucose is not available as a source of energy or it cannot be utilized as in diabetic ketoacidosis. Children admitted in the emergency department often have starvation ketosis which is not clinically manifested. Decision on admission of children to the emergency room with subtle signs can be difficult at times. Point of care blood ketone testing can be done at the bedside even in a primary level care setting to supplement and guide us in our management decisions. Hence this study was done to explore the utility of this simple bedside parameter as a supplement in assessing pediatric patients presenting to the emergency department. Objectives: To estimate blood ketones of children admitted in the emergency department. To analyze the significance of blood ketones in various disease conditions. Methods: Blood ketones using point of care testing instrument (ABOTTprecision Xceed Pro meters) was done in patients getting admitted in emergency room and in out-patients (through sample collection centre). Study population: Children aged 1 month to 18 years were included in the study. 250 cases (In-patients) and 250 controls (out-patients) were collected. Study design: Prospective observational study. Data on details of illness and physiological status were documented. Blood ketones were compared between the two groups and all in patients were categorized into various system groups and analysed. Results: Mean blood ketones were high in in-patients ranging from 0 to 7.2, with a mean of 1.28 compared to out-patients ranging from 0 to 1.9 with a mean of 0.35. This difference was statistically significant with a p value < 0.001. In-patients with shock (mean of 4.15) and diarrheal dehydration (mean of 1.85) had a significantly higher blood ketone values compared to patients with other system involvement. Conclusion: Blood ketones were significantly high (above the normal range) in pediatric patients who are sick requiring admission. Patients with various forms of shock had very high blood ketone values as found in diabetic ketoacidosis. Ketone values in diarrheal dehydration were moderately high correlating to the degree of dehydration.

**Keywords :** admission, blood ketones, paediatric emergencies, point of care testing

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