

Clinical applicability of glycated hemoglobin in the evolution of patients with hospital hyperglycemia

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Introduction: The hospital hyperglycemia is a frequent event initiated in patients with and without diabetes. The glycated hemoglobin (HbA1c) provides differentiation between hyperglycemia caused due glycemic variability secondary to other factors of hospitalization or diabetes mellitus without previous diagnosis. Thus, because of the deleterious effects triggered by hyperglycemia, justifies our interest in evaluating the HbA1c and its relationship to clinical outcome of patients admitted, either with or without diagnosis of DM.

Objective: To use the HbA1c as a diagnostic and predictive tool outcome of patients with and without diagnosis of diabetes mellitus performed during hospital stay and its relationship with the hospital complications.

Method: Analysis of 100 patients with HbA1c hospital hyperglycemia hospitalized for other clinical disorders. According to the American Diabetes Association (ADA), it has been defined as hyperglycemia hospital blood glucose levels above 140 mg/dl use HPLC method, employed by Fleury, with certificate from The National Glycohemoglobin Standardization Program. It was considered statistically significant at $p < 0.05$.

Results: There were 100 patients with mean age of 63.15 years, and 75% had previous diagnosis of DM, and 25% with hyperglycemia, but no previous diagnosis, 52% were diagnosed with DM. Patients without prior diagnosis of DM had HbA1c between 5.8% and 7.5%, with the median length of stay of nine days without complications. Patients with DM who developed complications had HbA1c between 7.3% and 12.4% and accounted for 20% of the study, with hospital stay of 34.5 days. DM patients without complications had HbA1c between 5.9% and 11.5% with length of stay of 11.12 days. Complications included pulmonary infections (50%), septic shock (15%), skin infection (15%), urinary tract infection (10%), and kidney (10%).

Discussion: Our study demonstrated that the HbA1c was increased in proportion to the increase in complications independent of hospital pathology associated with the patient. The deleterious effects of hyperglycemia and healing compromised immunity increased oxidative stress, endothelial dysfunction, and increase in pro-inflammatory and pro-thrombotic factors, enhanced mitogenesis, electrolyte changes, and potential exacerbation of myocardial and cerebral ischemia, thus providing the increase of these complications.

Conclusion: The analysis of HbA1c is presented as an important parameter to evaluate the length of stay and the risk of hospital complications independent of the patient's pathology.

Biography

Beatriz Dal Santo Francisco Bonamichi is pursuing her PhD at the Hospital Irmandade Santa Casa de São Paulo, in Brazil, and simultaneously doing part of her research at Joslin Center Diabetes. She is an Endocrinologist at Hospital Samaritano, Researcher at Endoclinica, and has presented a few papers at many congresses, as well as has been awarded.

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