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Case Report

Unconventional Therapies in COVID Inflammatory Syndrome for Type 2 Diabetes Mellitus Patients

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Abstract

Between August 2020 and November 2022, we assessed 40 women with breast cancer, type 2 diabetes, and COVID-19. Patients were treated with insulin Glargine U100 or U300, with or without Alpha Lipoic Acid, and antibiotics. Glargine U100 combined with Alpha Lipoic Acid led to faster glycemic control and normalization of inflammatory markers (IL-1, IL-6, CRP) compared to U300. These findings support early use of basal insulin and anti-inflammatory therapy to manage hyperglycemia and inflammation in high-risk diabetic patients during the COVID-19 pandemic.

Keywords: Therapies; Inflammatory Syndrome; Diabetes Mellitus

Introduction

During August 2020 and November 2022, we assessed the health of 40 women patients with breast cancer, COVID-19 and T2DM. All these patients were hospitalized in an external section. In the same time, the infectionist and epidemiologist had to be reserved in the pulmonary reinfection with a bacteria, that was delaying the cancer surgical intervention. The lots were treated with insulin Glargine U 100 and Glargine U 300 with or without Alpha Lipoic Acid. The mean duration of hospitalization was 14 days, with antibiotic from the first day.

In China, Wuhan, were investigated 689 patients with COVID-19 and type 2 diabetes, in a retrospective study, from a cohort of 3,305 cases, treated with insulin, was associated with significant increase in mortality 27.2% versus 3.5%, so it's better to start on oral antidiabetics and basal, and end only with a basal insulin, avoiding basal bolus [1]. In people with diabetes who have pro-inflammatory markers high, can worsen COVID-19, and have clotting problems, in poor hyperglycemia, with insulin-resistance and production of advanced glycation, with HbA1c levels above 10%. in the last years [2].

The systematic search generated 14,960 articles and it ended up with 9 articles in 2023, of which 8 articles involved data on the comparison of cytokines markers in type 2 diabetes and non-diabetes patients with COVID-19, while 4 of them involved data on cytokines markers in the diabetes patients compared either by the severity of diseases (with inflammatory markers high IL-6, TNF-alpha) or the rate of survival [3]. We tried to control the inflammatory syndrome and the pain in infected cancer COVID-19 women.

Materials and Methods

During the 14 days of hospitalization, this group of women over 40 years were followed preoperative. The inflammatory parameters considered are IL1, IL-6, CRP, and fibrinogen, developing high glycemia on new onset diabetes.

Results and Discussion

Inflammatory cytokines in COVID-19 patients, are all recognized in women with age above 40, with diabetes during Pandemic COVID-19. This group has been treated on hospitalization with Glargine U100 and Alpha Lipoic Acid, having as a result the euglycemic level at discharge. Our concern is to bring light that IL-1 and CRP levels are both used to balance hyperglycemia in diabetes women treatable fast and easy with insulin Glargine U100 from the first 1-3 days (In the same time the antibiotic were used). For the comparative group treated with Glargine U300 and Alpha Lipoic Acid, Glycemia over 200 mg/dl has been very hard to treat, above 10 days, even with the same antibiotic initiation. In type 2 diabetes, during the COVID-19 pandemic, a basal insulin is always the fastest way to achieve a lower risk of hypoglycemia, using and other oral antidiabetic drugs [4].

Conclusion

The inflammatory syndrome for patients with breast cancer at discharge in diabetes treated with Glargine U100 and Alpha Lipoic Acid were very easy and fast in antibiotic treatment on SARS CoV-2 infection, controlling acute hyperglycemia, without any secondary infectious complications. Il1, CRP levels and other parameters are normal at discharge for the group where we used Glargine U100, Alpha Lipoic Acid at the same time with the antibiotic. The normal inflammatory markers were found on the therapy with Glargine U 100 and Alpha Lipoic Acid in the Pandemic COVID-19. Insulin Glargine can be used with oral antidiabetic drug (very often used SGLT2 inhibitors), having an impact on normal glycemia, and avoiding in the end the diabetic ketoacidosis, lowering the risk of basal bolus [5].

However, insulin must remain the first-choice agent in the management of critically ill-hospitalized patients, at the risk of respiratory failure, when are hyperglycemias, while it is recommended to suspend other agents in unstable patients in COVID-19 Pandemic [6]. Diabetes patients have a high risk of mortality when they are infected with COVID-19, the involvement risk has been pulmonary and cardiac, and often is complicated with chronic hyperglycemias, having to choose a basal insulin and antidiabetic drug [7]. In Pandemic COVID-19, patients with diabetes, have mild-severe forms, and are usually first treated hyperglycemias and the cytokines like IL-1 and Il-6, to prevent a cytokine storm [8].

Conflict of Interest

The authors declare no conflicts of interest.

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