



Clinical Benefits against Obesity and Diabetes Related to Health Complication

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DESCRIPTION

With an alarming rise in incidence and an 8.5 percent global prevalence, Diabetes Mellitus (DM) is a serious health issue. DM is the third leading cause of death worldwide, after cancer and cardiovascular disease. Type 1, which predominates in children, and type 2, which is more frequent in adults, is the two main forms of DM. These two types typically have different risk factors. The SARS-CoV-2-related Corona Virus Disease 2019 (COVID-19) pandemic has brought attention back to the DM-affected community. The majority of patients needing hospitalization (60%–90%) have co-morbid conditions, with diabetes accounting for a sizeable portion (17%–34%) of those, which is not just confined to but aggravated by advancing age. These patients typically have a higher probability of developing respiratory failure, being admitted to the intensive care unit, and consequently have a negative prognosis. These patients typically have a higher chance of developing respiratory failure, are more likely to be admitted to the intensive care unit, and consequently have a bad prognosis. With DM as comorbidity, Case Fatality Rates (CFR) of COVID-19 is much higher, for example, 35.5 percent in Italy. Obesity is a significant risk factor for type 2 diabetes, and both are directly linked to the systemic inflammation that is common in COVID-19.

The Journal of Food Processing and Technology is a great resource for nutritional intervention to treat the triple threat of DM, obesity, and COVID-19 because DM and obesity are caused by genetic, epigenetic, environmental, behavioural, and nutritional circumstances. We must therefore comprehend how the aforementioned three conditions are related at the molecular level. Diabetes Mellitus (DM) can be caused by the loss of pancreatic beta cells (type 1) or by insulin resistance/relative

insulin insufficiency (type 2). Angiotensin II (AngII), a key hormone of the Renin Angiotensin System (RAS), has a crucial role in controlling DM. The host cell receptor for SARS-CoV-2, Angiotensin-Converting Enzyme 2 (ACE2), cleaves AngII into physiologically active peptides. Clinical benefits against problems during diabetic cardiovascular progressions are seen with ACE2 and AngII receptor inhibition. Targeting ACE2-mediated downstream reaction cascades can stop the development of type 2 diabetes. Angiotensin inhibition reduces the risk of obesity-related hypertension, and SNPs in ACE2 are associated with dyslipidemia, obesity, and cardiac dysfunction in people with diabetes. Visceral adipose tissue, where ACE2 is highly expressed, likely contributes significantly to the massive accumulation of viral load during COVID-19.

The health problems related with obesity, diabetes, blood clotting, and inflammation response leading to multiorgan failure, all of which worsen the prognosis of COVID-19, are alleviated by pharmaceutical inhibitors against the AngII receptor and ACE2. Food processing and technology are crucial in this situation since individuals with DM, obesity, and COVID-19 need nourishment that preserves natural ACE2 and AngII receptor inhibitors. For instance, consumers of fresh food as well as packaged preserved food with extended shelf life need to have access to certain natural food's antioxidants, anti-inflammatory, and blood thinning characteristics. Combination therapies incorporating natural foods and pharmaceuticals will also benefit from this procedure. While no natural food has been proven to be a cure or preventative for COVID-19, certain of its properties interfere with ACE2 and AngII to lessen the unfavourable physiological conditions that would otherwise worsen COVID-19 patient's health.

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