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EC DIABETES AND METABOLIC RESEARCH
Conceptual Paper

Diabetes and Cancer Have a Complex Relationship? Requires Attention

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Received: September 01, 2017; **Published:** September 15, 2017

Diabetes is 3rd leading disease after heart disease and cancer around the world. Diabetes mellitus is a multifactorial and combined metabolic syndrome includes hyperglycemia, dyslipidemia, stroke and several other associated complications. Various research groups around the globe continually work to find out the possible role of a vast number of associated genes and their role in type 2 diabetes. The relation between cancer and diabetes has been investigated extensively by many researchers worldwide however, many studies found that diabetes is related with an increased risk of several forms of cancer. Moreover to this, diabetes is a group of metabolic disorders. Many reports suggest that the risk of several types of cancer is increased in diabetic patients. Several confounding factors including diabetes duration, varying levels of metabolic control, different drugs used for diabetic therapy and the possible presence of chronic complications make it difficult to accurately assess cancer risk in diabetic patients. Prolonged hyperglycemia, over weight (obesity) and increased oxidative stress may also contribute to increased cancer risk in diabetes individuals. While anti-diabetic drugs have a minor effect on risk of cancer, drugs used for the treatment of cancer may either cause diabetes or worsen a preexisting diabetes condition. In addition to this the well-established fact that the diabetogenic effect of glucocorticoids and anti-androgens, an increasing number of well targeted anti-cancer molecules may interfere with metabolism of glucose acting at different levels on the signaling substrates and lead to cancer.

The complexity of the various diabetic conditions, the diversities in the biology of different forms of cancer and the multiplicity of the possible mechanisms involved prevent a comprehensive and definite answer to many questions regarding the association of diabetes with an increased risk of cancer initiation and its progression. Most epidemiologic studies have not carefully considered a series of confounding factors and diabetic patients have not been adequately characterized for the type of diabetes, the duration of the disease, the drugs used for therapy, the quality of the metabolic control or the presence of comorbidities.

Due to this intrinsic heterogeneity of diabetes and cancer, studies on the association of these two diseases are not an easy task to carry out. The available evidence indicates that the level of cancer risk related to diabetes will probably differ for each diabetic patient, on the basis of the cancer type and many other diabetes associated complications. Presently this does not allow us to clearly define the general as well as the specific organ cancer risks in the diabetic individual. Because of the growing worldwide frequency of diabetes, this question needs to be properly addressed, in order to acquire a more rational approach to cancer prevention and treatment in diabetic patients. In conclusion, diabetes and cancer have a complex relationship that requires more clinical attention and better-designed studies to resolve the strategy behind increased risk of cancer induced in diabetic individuals.

Volume 1 Issue 1 September 2017