

Review Article

Molecular Relationship of Type2 Diabetes Mellitus and Various Types Of Cancers in Pakistan

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Abstract:

Introduction: Type 2 diabetes mellitus (T2DM) has been reported to increase the risk of a wide range of cancers, including kidney, pancreas, early gastric, ovarian, prostate, breast and colorectal cancer.

Methodology: Scientific evidence has linked diabetes to high incidence, accelerated progression and increased aggressiveness of various cancers.

Results: Research has strengthened the link between diabetes and the risk of Colorectal(CRC) with several other cancers in both men and women.

Conclusion: Individuals with type 2 DM have a high risk of developing oral cancer and precancerous lesions(2). Over 400 million people had diabetes in 2015, and 17.5 million people globally had cancer(3).

Key words: diabetes, diseases, patient, type-2 hospitals

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Introduction:

In the US and other Western countries, type 2 diabetes mellitus and colorectal cancer are major causes of morbidity and mortality as DM is expected to become world's major cause of death in coming 25 years(1). Individuals with type 2 DM have a high risk of developing oral cancer and precancerous lesions(2). Over 400 million people had diabetes in 2015, and 17.5 million people globally had cancer(3). Carcinogenesis was

associated with hyperinsulinemia (4) or factors related to insulin resistance, such as hyperglycemia or hype triglyceridemia(5). Insulin can stimulate cell proliferation via a minor pathway, which involves direct activation of the insulin receptor or insulin-like growth factor (IGF)-I receptor and a major pathway, which acts by inhibiting IGF binding proteins (in particular IGFBP-1 and IGFBP-2), which may lead to increased free and bioavailable IGF-I (6). PPAR gamma is downregulated in both diseases while the

canonical pathway of Wnt / beta-catenin is upregulated. Association studies across the genome have identified genes associated with diabetes (e.g. TCF7L2), which can also contribute to colorectal cancer.

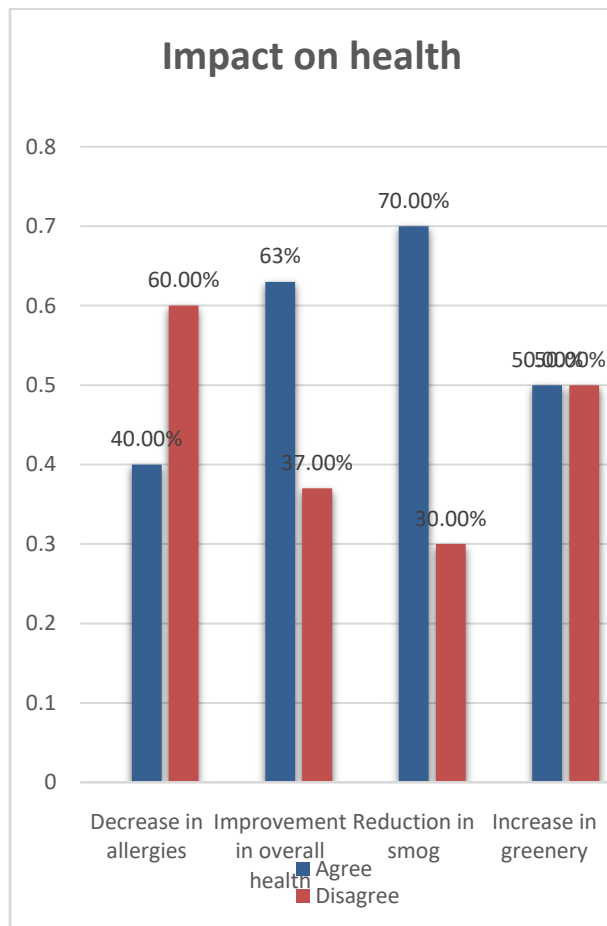


Fig 8: Global malignant ascites treatment market, by type of application,2015Vs 2024 (USD Mn)

Conclusion:

Epidemiological evidence recommends that the incidence of cancer is related to diabetes and to certain risk factors and treatments for diabetes(7). There was also a positive association between diabetes and

vulva and vaginal cancer(8). Subsequent in vitro studies showed that metformin (antidiabetic agent reduces cancer mortality in patients with diabetes) inhibits the proliferation of cancer cells (9) and kills cancer stem cells selectively. Metformin therapy relatively minimize levels of both circulating glucose and insulin in patients with insulin resistance and hyperinsulinemia. Diagnosis and treatment have made some progress in recent years, but CRC is still a major public health problem in the world. In order to reduce CRC mortality, early diagnosis, effective treatment and analysis prognosis were therefore of great importance. A better understanding of the relevant factors affecting cancer prognosis is urgently needed to guide the decision-making process for therapeutic strategies for cancer patients and improve their prognosis. Eventually DM- specific strategies for different cancer s are explored (10).

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