ASSESSMENT OF DIABETES MELLITUS AS A MADHUMEHA AND CANCER RISK – A REVIEW

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ABSTRACT

Background: Diabetes is a chronic metabolic disease. All over the world there has been substantial rise in number of diabetic patients and may experience an increased risk of cancer. Objectives: Primary - Associate the compiled data from systematic reviews. Secondary - Collect data from databases, journals, modern texts, websites & ayurvedic classics. Material and method: The systemic literature search includes databases, journals, periodicals, Ayurvedic classics, web sites like pub med, DHARA, AYUSH portal with the term 'Diabetes mellitus', 'risk of cancer', 'madhumeha' & 'prameha'. Result: All Meta analyses reporting a significant increased risk among diabetes patients for liver, pancreatic, oesophageal, colorectal, endometrial, breast, kidney and bladder cancer with the risk ratio and confidence interval. In madhumeha vyadhikshamatva [immunity] is a major casualty. Oja plays an active part as dushya in the pathogenesis of madhumeha and its deficiency characterizes vikar avighata abhava. Doshā, dushya, shatkriyakala, dhatukshayata, vyadhikshamtva abhaav these all possible factors in pathogenesis of madhumeha are responsible for increase a risk of cancer in patient. Conclusion: The systematic review of Meta analytical studies associated with all possible determinants in madhumeha pathogenesis confirms the result of increased cancer risk in diabetes mellitus patients.

Key words: Madhumeha, Diabetes mellitus, Cancer risk.

INTRODUCTION

Diabetes is the 8th leading cause of mortality in high-income countries, but now its prevalence has been rising more rapidly in middle and low-income countries as well. Association between diabetes mellitus (Type I & II) and cancer have been established by several Meta analyses including only studies of observational design. Clinical condition of diabetes mellitus is similar to madhumeha described in Ayurveda under prameha roga. It is a long-term disease with variable clinical manifestation and progression.

MATERIAL AND METHOD

Systematic reviews from databases, journals, periodicals, ayurvedic classical texts, modern texts were accessed with focus to study cancer risk in diabetes mellitus. The included studies compared the risk of cancer in diabetic patients versus non-diabetic patients. All types of observational study designs were included. Literature searches of ayurvedic classics consists data for prameha and madhumeha. Causes, pathogenesis, process of madhumeha and cancer were assessed to establish association between them.

RESULT AND DISCUSSION

All Meta analyses report a significant increased risk among diabetic patients for pancreatic cancer. Several observational studies have examined the relationship between diabetes and gastro intestinal cancer. Esophageal cancer also reported. Diabetes has been associated with an increased risk of colorectal cancer. Both endometrial cancer and breast cancer were reported to be increased in diabetes. Also, it is associated with increased risk of kidney cancer and bladder cancer.

Possible determinants for cancer risk in madhumeha are as follows:

Role of oja in madhumeha and cancer- Madhumeha is considered as mahagada. This is because; in madhumeha vyadhikshamatva (immunity) which depends on bala is a major casualty. This bala derived from oja characterizes vikara vighata bhava and its deficiency characterizes vikar avighata abhava. Sushruta has mentioned that oja is a supreme extract of all the dhatu and strength of the body. But, in madhumeha, oja is
excreted through urine leading to oja kshaya. This oja kshaya affects the immune system i.e. vyadhikshamatva. Charaka mentions that life depends on oja and therefore without oja one cannot live [22].

In modern aspect, the immune system can be divided into innate and adaptive responses. The ‘immune surveillance’ hypothesis proposes that, both the innate and adaptive immune system constantly survey for and eliminate newly formed cancer cells. Onset and progression of cancer are kept under control by immune system. [21,22] Diminished immunity is an important and common factor in disease of madhumeha and progression of cancer.

Role of Food, Nutrition & Physical activity- In madhumeha, causes related to food and daily/seasonal regimen are, excessive food intake without digestion of previously taken food, excessive intake of new grains, high calorie diet, guru, snigdha, sheeta, manda, shalaksha, sandra, sthira and pichchila guna ahara, amup oudak, gramyamamsa (meat), jaggery based food items, dadhi, day sleep, laziness, not undergoing detoxification process [21,22]. This ahara and vihara are dominant factors, considered as madhumeha nidana.

About 5-10 percent of cancer results directly from inheriting gene associated with cancer, but the majority involve alteration or damage accumulated overtime to the genetic material within cells. The causes of damage are both endogenous (internal) and exogenous (environmental). Food, nutrition and physical activity are important exogenous factors in the development of cancer. When a person is not suitably nourished, either through under or over nutrition this affects tissue micro-environment, compromising both structure and function [23,24].

Role of Samprapti ghataka and Shat-kriyakal - In pathogenesis of madhumeha, tridosha dusthi, dusshaya as a rasa, raktak, mamsa, meda, majja, vasa, shukra, oja, lasika, sweda, strotas as aanavaha, mutravaha, udakvaha, medovaha, amashayaudbhavasthana, all these are samprapti ghataka involved in pathogenesis of madhumeha. Vyakthasthan is sarva shareer [22] thus it affects the vital organs related of that dhatu and strotasa. These samprapti ghataka with chirkari vyadhiv swabhav and agni vaishmyata may be responsible to stop inhibition of several events that lead to cancer or contribute to cancer development.

In 6th kriyakal (bhedavastha), madhumeha would have attained sub-acute or chronic stage. This disease proceeds into more severe forms in the events of increasing dhatu kshaya. Immunity worsens and disease essentially involves asadhvyatha. Hence forth upadrava and arishta lakshana starts to appear [21,22]. In this stage immunity surveillance process declines, which is essential to recognize difference between cancer cell and normal cell. Progression of cancer may take place as an upadrava.

Pitta prameha and cancer- Pittaja prameha caused by excessive intake of ushna guna ahara, katu-amalavana rasa. Ajeernashana, vishram ahara sevana, excessive sun bath, excess irritability, excess labour and anger these all hetus vitiate the pitta dosha. Inflammation occurs in pittaj prameha which is one of the characteristic of prakupit pitta. Chronic inflammation can result in DNA damage and cancer promotion [23,24].

CONCLUSION

Food, Nutrition, Physical activity, make immunity stronger against various diseases. But improper food pattern and daily/seasonal physical activity in madhumeha affects the immunity severely with involvement of samprapti ghataka. Thus all the above determinants help to increase the risk of cancer promotion. Furthermore, studies are required to assure the involvement of these possible determinants as mentioned. Physicians in contact with diabetes patients should be aware that patients are at an increased risk of cancer.

REFERENCES


