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A Review On Influence of Complementary and Alternative Medicine In Type 2 Diabetic Patient

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ABSTRACT

Complementary and alternative medicine (CAM) refers to a wide range of clinical therapies outside of conventional medicine the term "complementary " refers to the therapy that are used in conjunction with conventional medicine where as alternative medicine includes therapy that are used in place of conventional medicine. The term "integrative medicine that has been advocated by some CAM providers More than one-third of patients with diabetes in the united state use some type of complementary and alternative medicine herbs, dietary supplements and mind body medicine are the most commonly used studies and CAM modalities to treat diabetes including proposed mechanisms a summary of evidence and adverse effect. It also offers recommendation for counseling patient regarding CAM use. The use of CAM for patients with diabetes was reported to be common in almost all parts of the world However, different definitions were used for CAM, which was one of the reasons for a wide range of prevalence of CAM use ranging from 17% to 73% CAM use prevalence in the USA ranged from 31% to 57% among diabetes patients , 63% in Bahrain 62% in Mexico 7% in UK and 25% in Canada China had a long tradition of use of herbal medicine for diabetes The findings of a systematic review reported that Chinese herbal medicines were reported to be more effective for diabetes compared with lifestyle modification alone In China, traditional medicines accounts for 40% of all healthcare.

Keywords: CAM, Diabetes

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INTRODUCTION

Complementary and alternative medicine (CAM) refers to a wide range of clinical therapies outside of conventional medicine the term "complementary " refers to the therapy that are used in conjunction with conventional medicine where as alternative medicine includes therapy that are used in place of conventional medicine. The term "integrative medicine that has been advocated by some CAM providers[1].The use of CAM for patients with diabetes was reported to be common in almost all parts of the world However, different definitions were used for CAM, which was one of the reasons for a wide range of prevalence of CAM use ranging from 17% to 73% CAM use prevalence in the USA ranged from 31% to 57% among diabetes patients 63% in Bahrain 62% in Mexico 7% in UK and 25% in Canada China had a long tradition of use of herbal medicine for diabetes The findings of a systematic review reported that Chinese herbal medicines were reported to be more effective for diabetes compared with lifestyle modification alone In China, traditional medicines accounts for 40% of all healthcare[2].

Use of complementary and alternative medicine in India

India is the second largest country in the world after China with an estimated 69.2 million adults with type-2 diabetes .It is a major public health problem that requires regular to medication along with lifestyle modification in order achieves adequate control [4]. In developing countries such as India, access to modern medicine is limited in the public sector and patients usually approach private sector including all systems of medicine Previous studies have reported that patients with Diabetes was more likely to use complementary and alternative medicine (CAM) compared with other patient groups [6]. The major reasons for using CAM for the treatment of diabetes were fear about side effects, dissatisfaction with healthcare providers and higher costs of modern medicine Other reasons were higher level of medication adherence along with better understanding of the need for lifestyle changes for diabetes management during CAM treatment and easy availability of CAM without the prescription of a doctors few studies reported CAM use from different parts of India [7].One such study from the state of Uttar Pradesh reported a prevalence of 68% CAM use among diabetes patients [8]. CAM use for selected chronic diseases (HIV, epilepsy, rheumatoid arthritis and diabetes) in India was reported to be 35% with the highest use of CAM among diabetes patients (63.2%) in Maharashtra India has a rich tradition of use of ayurvedic medicines and has government department for CAM which is named as AYUSH' (Ayurveda, Yoga, Naturopathy, Unani, Sidha and Homeopathy Within India, Kerala state reported the highest prevalence of type-2 diabetes (20.6%) in rural areas Adherence to modern medicines among

diabetes patients using Morrissey's scale in rural Kerala was reported to be26% indicating a probability of higher use of CAM in the state However, only one study was reported

Form Kerala on CAM use based on a convenient sample of50 diabetes patients from urban areas.

Types of diabetes

Type 1 Diabetes

Type1 diabetes is also called insulin dependent diabetes it is used to be called juvenile onset diabetes because it often begins in childhood .type1 diabetes is an autoimmune condition it is caused by the body attacking its own pancreas with antibodies the damage pancreas does not make insulin[9].

Type 2 Diabetes

By far the most common form of diabetic is type2 diabetes accounting for 95% of diabetes cause in adult some 26 million American adult have been diagnosed with diabetes accounting for 95% of diabetic cause in adult have been diagnosed with disease type 2 diabetes used to be called adult onset diabetes but with the epidemic of obese and overweight kids more teenagers are now developing type 2 diabetes [10].

Gestational Diabetes

Diabetes that's triggered by pregnancy is called gestational diabetes (pregnancy to some degree leads to insulin resistance) It is often diagnosed in middle late pregnancy because of higher blood sugar level in mother are circulated through placenta to the baby gestational diabetes must be controlled to protect the baby growth and development[12].

Allopathic medicine for Diabetes

Anti diabetic drug are all pharmacological agents that have been approved by hyperglycemic treatment in Diabetes. All this agent reduces blood sugar level to acceptable range and relive symptoms of diabetes such as thirst excessive urination and keteo acidosis serious complication of diabetes that occurs when the body cannot use glucose as an energy fuel .and the anti diabetic agent can also prevent the complications like diabetic retinopathy and diabetic keto acidosis and diabetic neuropathy[14].

Table 1: Allopathic medicine for Diabetes

Drug class	Route of administration	Advantages	Disadvantages
Bigunides	Oral	Effectively lowers HbA1c low cost does not cause weight gain	GI compliance minimal risk of lactic acidosis
Sulfonylureas	Oral	Available as generic	Can cause weight gain
Bigunides	Oral	Do not promote weight	Flatulance abdominal discomfort

		gain safe in patient with renal failure reinforce carydrate reduction	diarrhea relatively high cost
Sulfonyl ureas	Oral	Available as generic	Can cause weight gain
Thiazolidnes	Oral	May preserve beta cells from ongoing distruction	Cause fluid retention n stimulate accumulation of adepose tissues
Meglatinide	Oral	Rapid disappearance time result in lower risk of hyper glycemia	Much shorter duration of action than sulfolnyl urea thus this agent must be taken before meal moderately high cost
Amylin analog	Parentral	Weight lose can be occurs	Nausea unpredictable hypoglycemia

Diabetes perspective of Ayurveda

Ayurveda (In Sanskrit "knowledge of life" or "knowledge of longevity") is one of countries like, Sri Lanka, Malaysia, Mauritius, South Africa, Japan, Russia Europe, and North America (Elder, 2004; Hankey,2005; Patwardhan, 2010 and Vaidya, 2001)[16]. Herbs are commonly used for treatment in Ayurveda. Indian healthcare consists of various systems of medicines and Ayurveda still remains dominant compared to modern medicine, particularly for treatment of a variety of Chronic disease conditions. Considerable research on pharmacognosy, chemistry[17] .pharmacology and clinical therapeutics has been carried out on ayurvedic plants (Patwardhan, 2004.The Ayurvedic Pharmacopoeia of India is especially rich in herbal treatments for diabetes (Ayurvedic Pharmacopoeia of India, 2008[19]. Ethno botanical studies of traditional herbal remedies used for diabetes around the world, have identified more than 1,200 species of plants with hypoglycemic activity although only a few of them have been scientifically studied (Ajgaonkar, 1979[20]. Yoshiharu, 1994; Alarcon, 2000[21]. WHO, 2005 and Vaidya, 1979) Medicinal plants used to treat hypoglycemic or hyperglycemic conditions are of considerable interest for ethno-botanical community as they are recognized to contain valuable medicinal properties in different parts of the plant and a number of plants have shown a varying degree of hypoglycemic and anti hyperglycemic activity[22].India is endowed with traditional wealth of medicines as is evident from the fact that the 'Shushruta-Samhita', the ancient repository, differentiated between genetically and the acquired forms of diabetes and recommended different treatments for the two types of diabetes (Grover, 2002). In India, plants have long been used for the empirical treatment of diabetes (Pulok, 2006 and Vaidya, 2008). The hypoglycemic activity of large number of these plants have been evaluated and confirmed in different animal models (Preston, 1985; Portha,2007 a; Frode, 2008). Diabetes mellitus was well known to the ancient

founders of Ayurveda, as judged from the detailed descriptions of the disease in the classic texts like Charaka –Samhita, Sushruta-Samhita and Bhrigu-Samhita etc.

Phyto constituents with hypoglycemic potentials

Alkaloids

Various alkaloids have been isolated from numerous Indian medicinal plants and Berberine is known to have potent hypoglycemic activity. It is obtained from *Tinospora cordifolia* (Singh et al., 2003)[23]. The mode of its anti hyper glycemic activity was investigated in the Caco-2 cell line. Berberine effectively inhibited the activity of disaccharides in Caco-2 cells, decreased sucrose activity after preincubation with Caco-2 cells for 72 h but failed to produce any significant effect on gluconeogenesis and glucose consumption of Caco-2 cells, suggesting that the anti hyperglycemic activity of berberine is at least partly due to its ability to inhibit alpha-glucosidase and decrease glucose transport through the intestinal epithelium (Pan, 2003). Alkaloids like catharanthine , vindoline and vindolinine, obtained from *Catharanthus roseus* also lower blood sugar level (Chattopadhyay,1999).

Imidazoline compounds

Certain imidazoline compounds are known to have a stimulatory action on insulin secretion by activation of imidazoline binding sites in the pancreatic beta cell. Beta-carbolines, having activity at imidazoline sites been studied for their effects on insulin secretion [24]. Harmane, norharmane and pinoline, the betacarbolineswere found to increase insulin secretion two-to three-fold from isolated human islets of Langerhans. Harmane and norharmane obtained from *Tribulusterrestris* L. and may account for the hypoglycemic property of the plant (Nadkarni, 1976; Kirtikar, 1993)[25]. Harmane stimulates insulin secretion in a glucose-dependent manner. The results strongly substantiated the claim of betacarbolines as potent insulin secretagogues[26].

Polysaccharides

Various Indian hypoglycemic plants like *Aloe vera*, *Ocimum sanctum*, *Alpiniagalanga* are found to contain polysaccharides. A protein-bound polysaccharide isolated from water-soluble substances of pumpkin was investigated for hypoglycemic activity in various doses (500 and 1000 mg/kg body weight) in alloxan diabetic rats. The results indicated that the polysaccharides increased the levels of serum insulin, reduce the blood glucose levels and improve tolerance of glucose (Quanhong, 2005)[27].

Naturopathic treatment for Diabetes

The objective of naturopathic treatment of diabetes is to reduce high level of glucose in blood and ensure the overall well-being of the patient utilizing natural therapies such as diet, exercise,

neutritional supplement and herbs depending on the individuals. Dietary control is the mainstay of treatment for type 2 diabetes and plays an integral part in the management of type Dietary recommendations have undergone extensive reviewing recent years and considerable changes have been made Generally speaking, healthy eating advice for people with diabetes is the same as for the general population eating about the same amount of carbohydrate at The blood glucose level is closely affected by carbohydrate intake. Previous guidance for people with diabetes recommended restriction of carbohydrates. As a consequence of this advice number of people tended to eat more fat. Current guidance for carbohydrate consumption still emphasizes the importance of total carbohydrate intake, but it focuses on selecting carbohydrates with a lower glycaemic index, that is carbohydrates which give sustained release of sugars over time, as opposed to carbohydrates with a high glycaemic index that give high peaks in blood glucose concentration. Examples of carbohydrates with a low glycaemic index include beans, pulses and starchy foods like whole meal pasta and wholegrain bread Total carbohydrate consumption should not exceed 45–60%of energy intake, with monounsaturated fat and carbohydrate combined making up 60–70% of energy intake Sucrose or 'sugar' may be included in the diet, according to the new guidance, but sucrose should account for no more than 10% of total energy and should be spaced throughout the day, rather than being consumed all in one go. Sugar alcohols for example, sorbitol, maltitol and xylitol, often used as sugar [28].

They are therefore considered to confer little advantage over sucrose. Non-nutritive or intense sweeteners such as aspartame, saccharin, acesulphame K, cyclamate and sucralosemay be useful, especially for those who are overweight Alcohol**.** Alcohol contains carbohydrates and, if consumed in excess, may cause hyperglycemia. However, more dangerously it is also associated with later-onset (up to 16 h post-hypoglycaemia and hyperglycaemia unawareness of the public.

CONCLUSION

Patients with sub-optimally controlled type 2 diabetes expressed a high level of interest in trying non diabetic care. Those patients with the greatest interest were less satisfied with their diabetes care, more motivated to engage in self-care, and more likely to use other CAM therapies for their diabetes.

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