INTRODUCTION

“It is not in the stars to hold our destiny but in ourselves.”
-William Shakespeare

THE LEGACY EFFECT

The concept of glycemic legacy or metabolic memory is well understood by physicians, who aim to achieve optimal long-term therapeutic outcomes by achieving tight glucose control. This concept has been extended to other spheres of management, with vascular legacy being noted for diverse interventions such as lifestyle modification, lipid-lowering therapy, and debatably for antihypertensive therapy.[1] The principle of karma in the management of diabetes may have implications at the transgenerational level during pregnancy and nursing, at the individual patient-level based on phenotype, and at the community level in preventive medicine. The concept of metabolic karma can be used as an effective motivational tool to encourage better health care seeking behavior and adherence to prescribed interventions.

Keywords: Gestational diabetes mellitus, glycemic legacy, metabolic memory, type 2 diabetes

Karma in Medicine

Karma suggests that one’s own actions lead to various states of existence. Some of these may be modifiable, while others may not. This is similar to what we encounter in modern medical research. Some determinants of health may be genetic in nature, i.e., carried over from a “previous existence.” Yet others may be environmental or related to the current lifestyle. Thus, the concept of karma can straddle the entire spectrum of modern noncommunicable disease, including diabetes.

Karma in Diabetes

Thomas has used the term “metabolic karma” to explain the phenomenon of glycemic legacy in diabetes.[2] We appreciate his use of Sanskrit, India’s ancient language, to convey this meaning in a wholesome manner. Karma is not only the sum of actions executed to achieve this aim. It contrasts with a similar Sanskrit word, “kriya” which describes just the activity, along with steps and effort in action, but does not encompass the ethical nature, or outcome, of such activity.

Abstract

Karma is the ancient Indian philosophy of cause and effect, which implies that an individual’s intentions, and actions, both have consequences. None can escape the consequences of one’s actions. Applying the principle of karma to medicine and healthcare, the significance of optimal and timely interventions at various stages of disease, may be realized. A holistic approach to metabolic control in diabetes translates into improved clinical outcomes, as evident from the result of STENO-2, EMPA-REG OUTCOME, or LEADER trials. The principle of karma in the management of diabetes may have implications at the transgenerational level during pregnancy and nursing, at the individual patient-level based on phenotype, and at the community level in preventive medicine. The concept of metabolic karma can be used as an effective motivational tool to encourage better health care seeking behavior and adherence to prescribed interventions.

Keywords: Gestational diabetes mellitus, glycemic legacy, metabolic memory, type 2 diabetes

Access this article online

Quick Response Code:  
Website: www.ijem.in  
DOI: 10.4103/ijem.IJEM_571_16

Address for correspondence: Dr. Sanjay Kalra, Department of Endocrinology, Bharti Hospital, Karnal, Haryana, India. E-mail: brideknl@gmail.com

This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

For reprints contact: reprints@medknow.com

How to cite this article: Kalra S, Ved J, Baruah MP. Diabetes destiny in our hands: Achieving metabolic karma. Indian J Endocr Metab 2017;21:482-3.
all action, but also includes the intent behind these actions as well. From a diabetes care perspective, we would take this to mean consideration of targets, and the techniques for achieving such targets. Timely and optimal interventions, aimed at achieving recommended metabolic targets, do contribute to a sustainable improvement in overall outcomes of diabetes. The holistic approach of metabolic karma encompasses diagnostic as well as therapeutic considerations, at various stages of disease. The different dimensions of preventive medicine, as enlisted in Table 1, nicely exemplify a holistic approach to metabolic karma.

Multiple trials have proved that appropriate glucose-lowering, blood pressure, and comprehensive management can improve long-term outcomes. The benefits accrued by such management strategies are maintained even when the initial difference in control is lost. Most recently, the STENO2 study reported an increased survival of 7.9 years, if comprehensive control was instituted, over a follow-up of 22 years. The words “metabolic karma,” therefore, are more appropriate than the phrase “glycemic karma.”

As a corollary, use of drugs associated with poor efficacy or appropriateness, poor tolerability, high risk of hypoglycemia, or high glycemic variability, can be termed as “bad pharmacological karma” or suboptimal therapeutic karma. The use of an inappropriate glucose-lowering drug, or an unsuitable insulin regime, to achieve an unwarranted target, is bad “glycemic karma,” which will, in turn, lead to suboptimal outcomes or bad clinical karma.

**Positive Outlook**

However, good metabolic karma can be achieved in real world experience. This can be done by timely institution of a healthy lifestyle, glucose lowering, blood pressure lowering, lipid-lowering, and weight lowering drugs if required. The results of EMPA REG OUTCOME and LEADER trials suggest that appropriate choice of drugs (empagliflozin and liraglutide, respectively) does influence long-term outcomes. This supports the thought that Diabetes Destiny can be modified by appropriate “metabolic kriya.”

**Transgenerational Karma**

Metabolic or glycemic karma may affect the unborn generation as well. Women who can prevent or manage their gestational diabetes mellitus effectively give birth to healthier newborns. On the contrary, children of women with uncontrolled diabetes during pregnancy have poorer long-term outcomes. Thus, metabolic karma has a transgenerational impact, similar to the transexistential persistence of karma.

**Transindividual Karma**

As diabetes care professionals, it is our responsibility to achieve good metabolic control in every person with diabetes. The phenotypic characteristics of each individual patient, including the demographic, glycemic, cardiometabolic, or renal phenotypic characteristics, have considerable clinical implications. The actions we undertake, after considering all these factors, are our karma. Good karma (intention and action), performed by us, will benefit not only the person with diabetes, and the community at large, but will also impact and transform our karma (fate or destiny) in a positive manner. Thus, every correct clinical decision that we make has a multifold cascading effect on karma, both ours and the patient’s.

**Summary**

The concept of karma is an appealing one. It helps understand the advantages of achieving tight glycemic and metabolic control in persons with diabetes, using appropriately individualized patient-centric therapy. Good karma can be gained within the same life, may transfer to the unborn offspring of antenatal women with diabetes, and also accrues to the diabetes care professional who works sincerely to control the diabetes endemic.

**Financial support and sponsorship**

Nil.

**Conflicts of interest**

There are no conflicts of interest.

**References**

1. Jermendy G. Vascular memory: Can we broaden the concept of the metabolic memory? Cardiovasc Diabetol 2012;11:44.
2. Thomas MC. Glycemic exposure, glycemic control, and metabolic karma in diabetic complications. Adv Chronic Kidney Dis 2014;21:311-7.
3. Kalra S, Sreedevi A, Unnikrishnan AG. Quaternary prevention and diabetes. J Pak Med Assoc 2014;64:1324-6.
4. Garde P, Oellgaard J, Carstensen B, Rossing P, Lund-Andersen H, Parving HH, et al. Years of life gained by multifactorial intervention in patients with type 2 diabetes mellitus and microalbuminuria: 21 years follow-up on the Steno-2 randomised trial. Diabetologia 2016;59:2298-307.
5. Zinman B, Wanner C, Lachin JM, Fitchett D, Bluhmki E, Hantel S, et al. Empagliflozin, cardiovascular outcomes, and mortality in type 2 diabetes. N Engl J Med 2015;373:2117-28.
6. Marso SP, Daniels GH, Brown-Frandsen K, Kristensen P, Mann JF, Nauck MA, et al. Liraglutide and cardiovascular outcomes in type 2 diabetes. N Engl J Med 2016;375:311-22.