



Case Report

Eating Frequency and Fasting Insulin Levels: A Case Report from Aurangabad

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ABSTRACT

Introduction: The nature of the relation between insulin levels, insulin resistance, and obesity is not yet clear. A positive correlation between fasting insulin levels (an index of relative insulin resistance) and obesity, particularly the central or android pattern, has been reported from cross-sectional data. Hyperinsulinemia per se has been proposed to cause insulin resistance. Eating frequency has a role to play in deciding fasting insulin levels. However there is contradicting literature regarding eating frequency and pre-diabetes as well as obesity. This case report presents the effect of twice a day eating frequency on fasting insulin levels.

Methodology: It is a case report. A female patient, doctor by profession had raised fasting insulin and strong family history of diabetes. She was advised to eat only twice in the day and her fasting insulin levels were monitored.

Results: From December 2012 to November 2013 her fasting insulin levels decreased from 24.4 to 5.4. In addition to this she also lost 6Kg weight.

Conclusion: Eating twice a day caused reduction in fasting insulin. Reduced fasting insulin indirectly means that her diabetes is getting postponed. She also lost 6Kg weight in this process which is a very important finding.

Key words: eating frequency, fasting insulin

INTRODUCTION

Obesity is recognized as a major preventable risk factor that contributes to a broad range of common chronic diseases in the United States, including hypertension, cardiovascular disease, and diabetes mellitus. Increased risk of insulin-resistant states, including glucose intolerance and non-insulin-dependent diabetes mellitus (NIDDM) in obese subjects, has also been well documented. However, the nature of the relation between insulin levels, insulin resistance, and obesity is not yet clear. [1] A

positive correlation between fasting insulin levels (an index of relative insulin resistance) and obesity, particularly the central or android pattern, has been reported from cross-sectional data. Centrally obese individuals tend to have higher fasting insulin levels and greater levels of insulin resistance. [2]

Hyperinsulinemia per se has been proposed to cause insulin resistance. Elevated concentrations of insulin can cause insulin resistance by down regulating insulin receptors and desensitizing post receptor

pathways. Suppression of insulin secretion in obese insulin resistant persons results in increased insulin sensitivity. [3] Fasting insulin level is used as an indicator for diagnosis of pre-diabetes. It has been estimated that in any 24 hour period, 50% of the total insulin secretion by the pancreas is secreted under basal conditions and the remainder is secreted in response to meals. The estimated basal insulin secretion rates range from 18 to 32 units per 24 hours (0.7 to 1.3mg). After meal ingestion, the insulin secretory response is rapid, and insulin secretion increases approximately fivefold over baseline to reach a peak within 60 minutes. [4] One cannot control the basal insulin secretion but insulin secretion occurring as a result of eating episodes can be controlled. Eating frequency has a role to play in deciding fasting insulin levels. However there is contradicting literature regarding eating frequency and pre-diabetes as well as obesity.

Objective

To see the effect of eating frequency on fasting insulin level that is a proxy indicator of insulin resistance and diabetes mellitus.

METHODOLOGY

This is a case report. A lady doctor of age 48years was diagnosed to have pre-diabetes. Her fasting insulin level was 24.4 on 29th December 2012. Her mother and two brothers are suffering from diabetes. She was advised to eat only twice in the day. This was done to reduce insulin secretion that occurs due to eating episodes. In between she was asked not to take any food item except buttermilk. The reason was that consumption of buttermilk doesn't cause insulin secretion. She started this pattern from 3/4/2013. Her fasting insulin was measured periodically.

RESULTS

The fasting insulin levels of the patient are as shown:

Date	Fasting insulin
29/12/2012	24.4
23/4/2013	13.7
28/5/2013	9.3
11/7/2013	7.3
22/11/2013	5.4

She had no problems at all. She also lost 6Kg weight!

DISCUSSION

In India, in 2004, there were estimated 37.7 million cases of diabetes in the country, of these 21.4 million were in urban areas and 16.3 million in rural areas. The estimated total mortality due to diabetes was 1,09 lac. [5] Insulin is a saving hormone and stores energy in the form of fats in the body. In its presence the body uses carbohydrates for getting energy. If the level of insulin decrease as generally happens in the state of fasting, the body uses fats as a source of energy. Due to eating many times in the day our insulin levels always remain very high. In some studies, subjects consumed 20% of calories with breakfast and 40% with lunch and dinner respectively. However, the amount of insulin secreted after each meal did not differ significantly. [6] By reducing the eating frequency from 6 to 7 times a day to twice a day her fasting insulin levels reduced significantly.

CONCLUSION

Eating twice a day caused reduction in fasting insulin. Reduced fasting insulin indirectly means that her diabetes is getting postponed. She also lost 6Kg weight in this process which is a very important finding.

Limitations: The study has all limitations of a case report. Further studies are required to test this hypothesis in order to critically

evaluate this simple and cheap method of reducing weight and postponing diabetes.

Future: The author is conducting a self controlled clinical trial to find out effect of eating frequency on prediabetes status at Aurangabad. The results of this study are likely to be available in December 2014.

REFERENCES

1. Reaven G, Lithell H, Landsberg L. Hypertension and associated metabolic abnormalities—the role of insulin resistance and the sympathoadrenal system. *N Engl J Med* 1995;334: 374-81.
2. Bjorntorp P. The regulation of adipose tissue distribution in humans. *Int J Obesity* 1996;20:291-302.
3. John B Buse, Kenneth S Polonsky & Charles F Burant- Type 2 Diabetes Mellitus in William's Textbook of Endocrinology, 11th edition Saunders Elsevier Publishers, Philadelphia, PA 19103-2899: 1340

4. John B Buse, Kenneth S Polonsky & Charles F Burant- Type 2 Diabetes Mellitus in William's Textbook of Endocrinology, 11th edition Saunders Elsevier Publishers, Philadelphia, PA 19103-2899: 1342
5. K.Park: Park's Textbook of Preventive and Social Medicine, 22nd edition, Banarsidas Bhanot Publishers, Jabalpur, 2013: 364
6. John B Buse, Kenneth S Polonsky & Charles F Burant- Type 2 Diabetes Mellitus in William's Textbook of Endocrinology, 11th edition Saunders Elsevier Publishers, Philadelphia, PA 19103-2899: 1350.

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