P-0335– Remission in Type 2 Diabetes Mellitus: factors associated with clinical remission in Egyptian patients

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BACKGROUND

Diabetes Mellitus traditionally has been considered a progressive and incurable disease. Best targets for control of diabetes are management of risk factors and tight metabolic control to prevent vascular and neuropathic complications. In type 1 diabetes, the honeymoon period occurs when residual pancreatic β -cell function is partially restored for an average of 7.2 months, as hyperglycemic stress is removed before the β -cells are ultimately destroyed. ¹

Studies to date have focused largely on remission of diabetes after gastric bypass. However, few studies demonstrated induction of a drug-free period for patients with type 2 diabetes using nonsurgical approaches. The Look AHEAD (Action for Health for Diabetes) study is perhaps the largest randomized controlled trial of an intensive lifestyle intervention among adults with type 2 diabetes to date. It is revealed that achieving a mean weight loss of 8.6% and a fitness increase of 21%, was associated with remission rate (partial or complete) of T2DM at one year was 11.5%.²

This study was conducted based on recent observation of increasing incidence of type 2 DM remission in our Endocrinology unit.

PURPOSE

To investigate factors that are associated with remission of type 2 DM in Egyptian patients.

Table 1. The difference in weight and metabolic profile of Type 2 diabetic patients between first and last visits.

mean $\pm$ SD	first visit	last visit	P (2-tailed)
BMI	34.22 $\pm$ 7.31	32.16 $\pm$ 6.25	0.266
A1C	7.87 $\pm$ 1.49	5.55 $\pm$ 0.53	0.000
FPS	185.77 $\pm$ 74.58	101.1 $\pm$ 11.24	0.000
PPS	263.97 $\pm$ 95.19	116.6 $\pm$ 25.2	0.000
HDL	42.93 $\pm$ 8.63	66.97 $\pm$ 45.19	0.000
LDL	143.13 $\pm$ 39.98	48.44 $\pm$ 10.82	0.006
TG	146.13 $\pm$ 94.19	91.82 $\pm$ 71.23	0.002

PATIENTS AND METHODS

This study is a retrospective cohort study which included 63 patients who developed type 2 DM partial or complete remission between the years 2012 & 2015. Remission definition was based on the 2009 ADA consensus statement; **partial remission**: 2 or more consecutive subdiabetic HbA1c (5.7–6.4%), whereas, **complete remission**: 2 or more consecutive normoglycemic HbA1c (<5.7%). Each definition of remission requires absence of anti-diabetic pharmacologic treatment for at least 12 months.³

we excluded subjects based on the following criteria: if they had type 1 diabetes; missed more than two visits; had a history of bariatric surgery, users of steroids or other hyperglycemic drugs in the year prior to baseline ; and patients with organ (heart, renal, and liver) failure.

Data in this analysis were collected from records at the first visit, including history, physical examination, glycemic control, lipid profile, type and duration of treatment.

We calculated the 5-years cumulative incidence of any remission using the Kaplan-Meier method. Cox proportional hazards models were specified to identify significant factors associated with the time to any remission. Receiver operating characteristic curve (ROC) was plotted to analyse a recommended cut-off values of significant continuous variables.

RESULTS

Medical records of 63 patients with diabetes remission were evaluated retrospectively. About 75 % of patients were females and 25% were males. At the first visit; the mean age was 51.5 (25-65) years old, and 93.3% of these patients were non smokers. Regarding medical history, the diabetes duration ranged from 0.5 to 9.5 years (mean= 4.20 $\pm$ 4.13 years), only 10% of patients suffered from ischemic heart disease, and 20% of patients had dyslipidemia. Also, in the first visit, anti-diabetic drugs shown in (**figure1**) with only 26% of patients have been maintained on statin.

The mean duration of treatment till remission was 26.4 $\pm$ 33.1 months (range 10-114 months); with 60 % of remission cases after 20 months of treatment. Around 44% of patient developed complete remission and 56 % developed partial remission. The change in metabolic profile is observed in (**table 1**).

The median 5-year cumulative incidences of overall, partial and complete remission were 3.17% (0.67 – 4.6%), 1.4% (1.1–1.5%) and 1.17% (0.940–2.54%), respectively.

The cox regression models were specified to identify significant factors associated with the time to any remission (partial and complete remission) included younger age , female sex, non smokers, shorter duration since diagnosis of diabetes , lower baseline HbA1c level and higher HDL, and who were initially treated with 2000 mg Metformin and Vildagliptin, but did not start with insulin therapy. (**figure 2**).

ROC curve analysis revealed that predictive values for remission were age < 50 years, < 5.2 years since diagnosis, baseline HbA1c level <8.5% and HDL > 45.6 mg/dl with sensitivity (71.5%, 89.5%, 58.7%, 62 %, respectively) and specificity (61.5%, 59.5%, 55.2%, 69 %, respectively).

CONCLUSION

In female patients younger than 50 years with type 2 DM less than 5 years duration, if the initial HbA1C is less than 8.5% and HDL more than 45.6mg/dl, our target in management is diabetes remission achieved by intensive life style modification in association with Metformin 2000mg and Vildagliptin 100 mg.

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