

Comparison of Teneeligliptin and Atorvastatin on Lipid Profile in Patients with Type 2 Diabetes Mellitus



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Abstract

Diabetes mellitus is a chronic metabolic disease characterized by hyperglycemia resulting from defects in insulin secretion, insulin action or both which results in long term damage, dysfunction and failure of various organs especially eyes, kidneys, nerves, heart and blood vessels. The efficacy of Teneeligliptin and Atorvastatin on lipid profiles in patients with type 2 Diabetes mellitus were compared. This study was designed to evaluate the efficacy of these two drug regimens.

Material and methods: Males and females of 25-90 years diagnosed with type 2 Diabetes mellitus are included in our study.

Results: 275 patients were recruited for our study. 47 were excluded because of their inability to attend or participate and did not meet inclusion criteria. 229 T2 DM patients who were taking Teneeligliptin 20mg once daily or Atorvastatin 20mg once daily completed the study. There were significant decrease in the levels of TC, HDL, LDL, TG, VLDL in Teneeligliptin and Atorvastatin are 35.1, 4.1, 14.8, 37, 7.5(mg/dl) and 35.1, 4, 14.6, 37.1, 7.6(mg/dl) respectively.

Conclusion: From this study we conclude that Teneeligliptin 20mg and Atorvastatin 20mg have proved to have similar efficacy on the lipid profiles. Hence we conclude that Teneeligliptin is an efficacious drug for T2 DM patients in management of glycemic control and lowering lipid profiles.

Background and Aim

Diabetes mellitus is a group of metabolic diseases which challenges the global population. Thus, there is an increasing need to conduct research in this field [1,2]. The aim of the study is to compare the efficacy of Teneeligliptin and Atorvastatin on lipid profile of patients with T2 DM. Comparative evidence is required to guide appropriate therapy to attain lipid control and prevent complications of diabetes [3,4].

Material and Methods

It is a prospective, observational, comparative study conducted in patients from "Sri Bhadrakali Diabetic Clinic" located at Nainnagar, Hanamkonda. Patients were explained about the study & informed consent forms were sought by explaining them in their local language [5,6]. Institutional Human Ethical Committee Endorsement was obtained after submission of protocol and IHEC No. is MGM/VCOP/PHARMD/V/017/2017.

Inclusion criteria

Males and females of 25-90 years diagnosed with type 2 Diabetes mellitus will be included in our study.

Exclusion criteria

Pregnant and lactating females, patients on insulin therapy, history of type1 Diabetes mellitus, signs of diabetic complications (neuropathy, nephropathy and retinopathy) are to be excluded [7]. Patients with clinical signs and symptoms of acute myocardial infarction, liver failure, chronic heart failure, and hypertension are to be excluded.

Study design

It is a prospective, observational, comparative study design, and the patients who were taking Teneeligliptin 20mg and Atorvastatin 20mg were included [8].

Clinical response assessment

The efficacy of Teneiglipitin and Atorvastatin was assessed by measuring the change in the HbA1c, Fasting blood glucose, Post prandial blood glucose and Lipid profile levels after 12 weeks of treatment.

Primary end was change in HbA1c levels, FBS, PLBS levels at 12 weeks as compared to the baseline levels in both the groups [9].

The secondary end point was change in lipid profile levels

such as serum cholesterol, high density lipoproteins, low density lipoprotein, triglycerides and very low-density lipoprotein which were measured at 12 weeks as compared to baseline levels [10].

Statistical analysis

All parameters were expressed as mean±SD. Data analyses was performed using the GRAPH PAD PRISM 5.0. One way ANNOVA was used to assess significant differences between values obtained before and 3 months after the addition of Atorvastatin and Teneiglipitin (Figure 1).

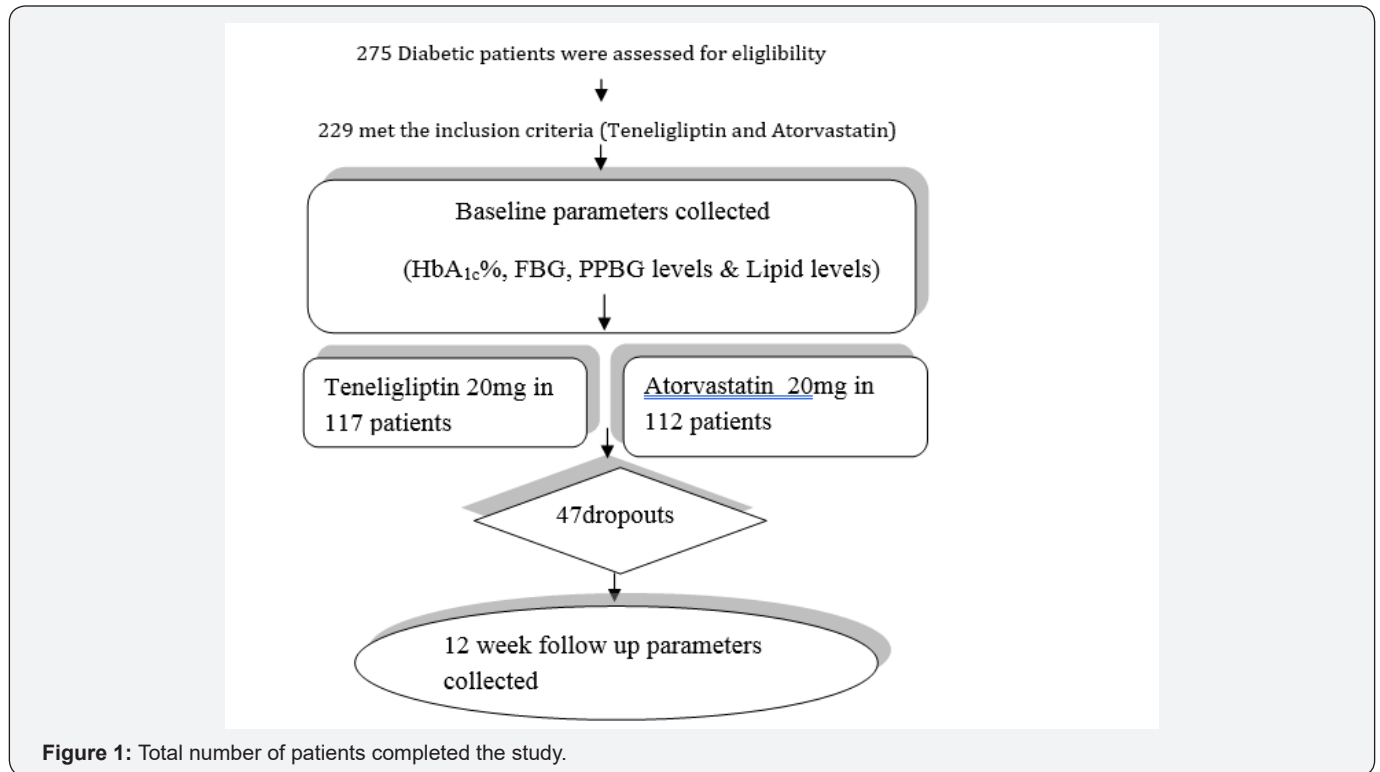


Figure 1: Total number of patients completed the study.

Results

High density lipoproteins (Figure 2)

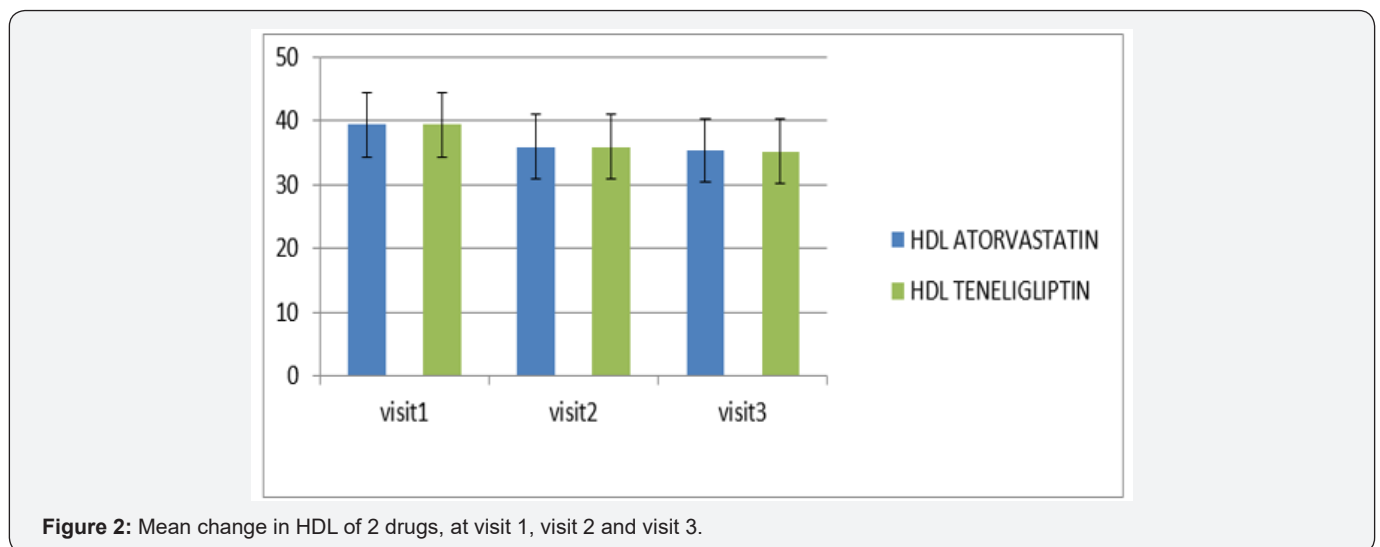


Figure 2: Mean change in HDL of 2 drugs, at visit 1, visit 2 and visit 3.

Mean change in high density lipoprotein for Tenebigliptin was 39.3 ± 14.4 mg/dl.

Mean change in high density lipoprotein for Atorvastatin was 39.3 ± 34.8 mg/dl.

Total cholesterol (Figure 3)

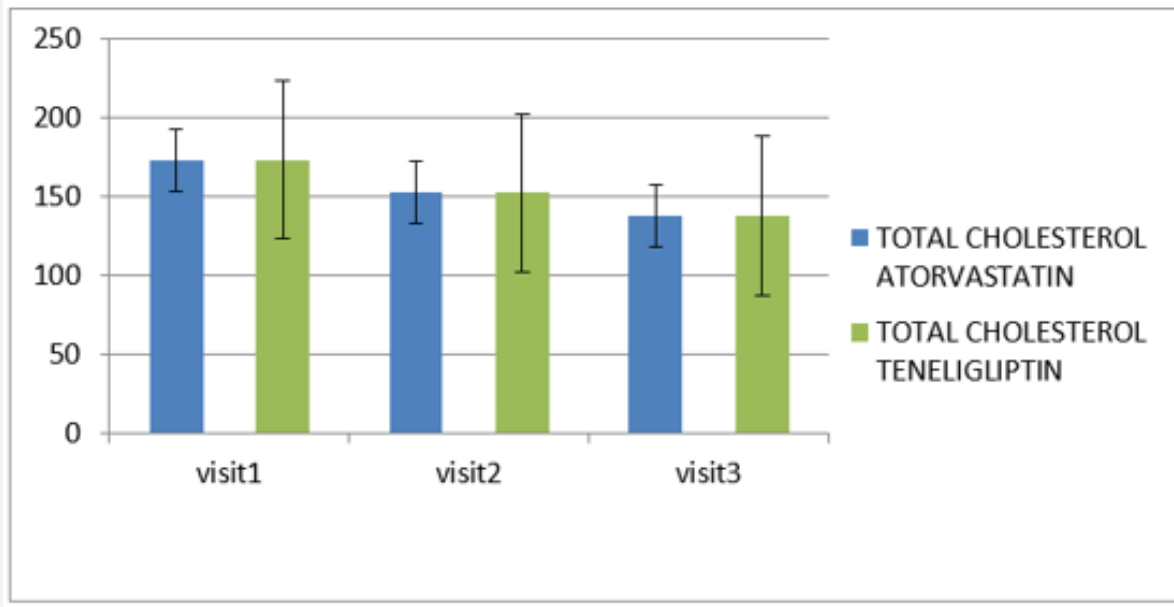


Figure 3: Mean change in total cholesterol of 2 drugs, at visit 1, visit 2 and visit 3.

Mean change in total cholesterol for Tenebigliptin was 172.6 ± 80.5 mg/dl.

Mean change in total cholesterol for Atorvastatin was 172.7 ± 86.5 mg/dl.

Low density lipoproteins (Figure 4)

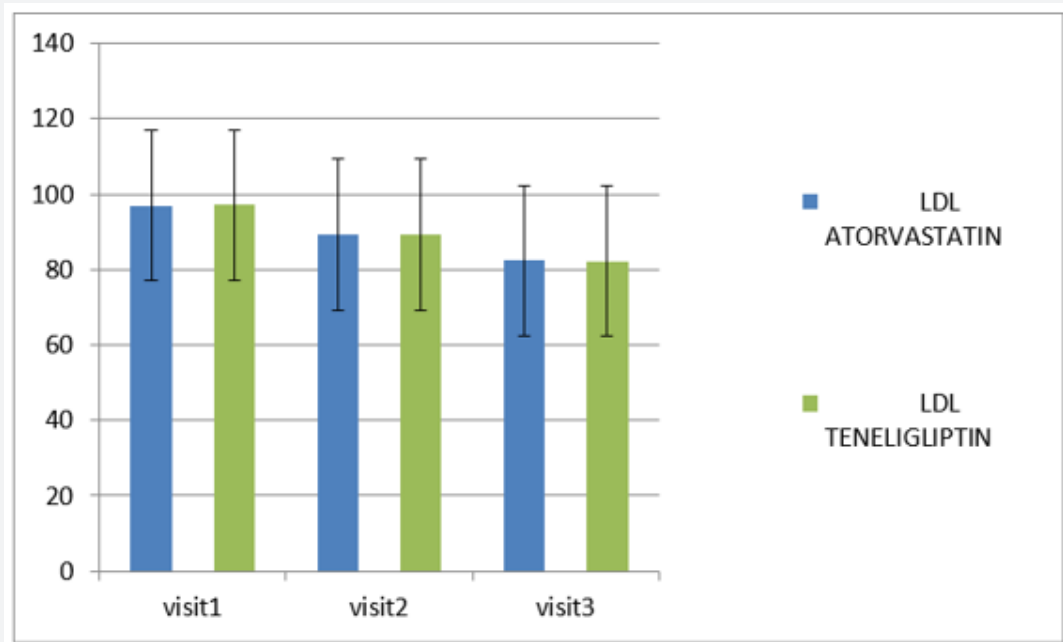


Figure 4: Mean change in low density lipoprotein of 2 drugs, at visit 1, visit 2 and visit 3.

Mean change in low density lipoprotein for Tenebigliptin was 97.1 ± 33 mg/dl.

Mean change in low density lipoprotein for Atorvastatin was 97 ± 36 mg/dl.

Triglycerides (Figure 5)

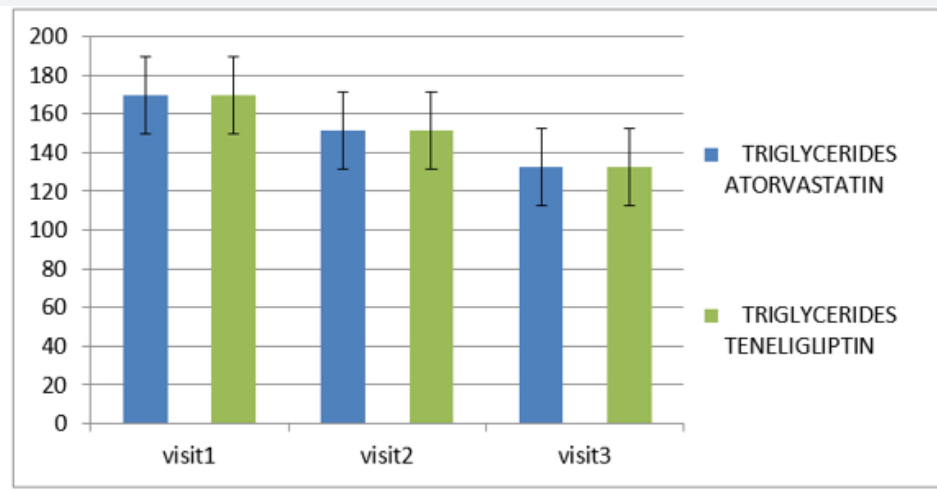


Figure 5: Mean change in triglycerides of 2 drugs, at visit 1, visit 2 and visit 3.

Mean change in triglycerides for Teneligliptin was 169.4±83.8mg/dl.

Mean change in triglycerides for Atorvastatin was 169.5±67.4mg/dl.

Very low-density lipoproteins (Figure 6)

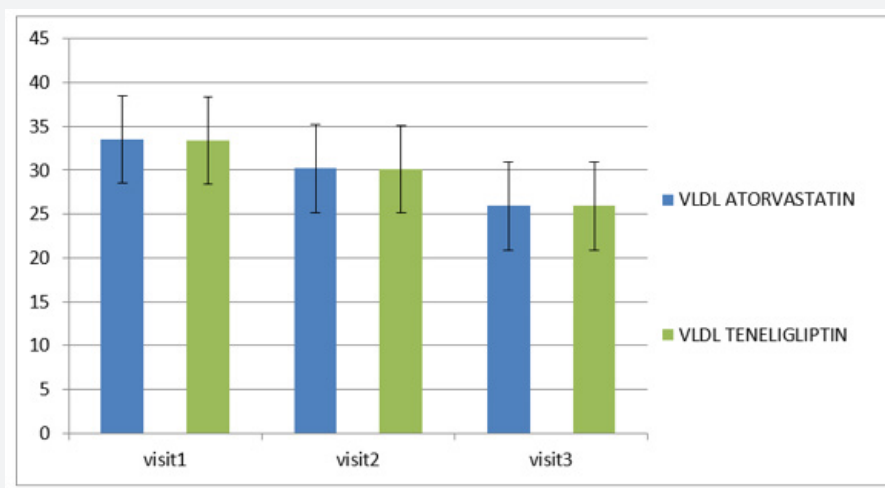


Figure 6: Mean change in very low-density lipoproteins of 2 drugs, at visit 1, visit 2 and visit 3.

Mean change in low density lipoprotein for Teneligliptin was 33.4±13.2mg/dl.

Mean change in low density lipoprotein for Atorvastatin was 33.5±11.9mg/dl.

Discussion

Comparison of Teneligliptin 20mg and Atorvastatin 20mg was done on lipid profile of patients with T₂ Diabetes mellitus. The following changes in glycemic parameters like HbA_{1c}, FBS, PLBS and lipid profile (TC, HDL, LDL, TG, VLDL) were observed. In this study, Teneligliptin or Atorvastatin therapy from baseline to visit3 has provided a greater reduction in HbA_{1c} i.e., Teneligliptin (1%) and Atorvastatin (1.5%). In the study [7], a similar decrease

in HbA_{1c} of 0.57% were observed. The mean changes in FBS levels from baseline to visit 3 was observed to be 45.8mg/dl in Teneligliptin and 45.6mg/dl in Atorvastatin. In the randomized, double blind study (n=99) by [8], Teneligliptin 20mg has showed greater reductions in the values of FBS-20.7mg/dl and 6.9mg/dl. Comparison of Teneligliptin 20mg and Atorvastatin 20mg were done on lipid profile of patients with T₂ Diabetes mellitus.

Conclusion

From this study we conclude that Teneligliptin 20mg and Atorvastatin 20mg have proved to have similar efficacy on the lipid profiles. Hence, we conclude that Teneligliptin is an efficacious drug for T₂ DM patients in management of glycemic control and lowering lipid profiles.

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