QUESTION 71

A 49-year-old man sees you six weeks after inferior Q-wave myocardial infarction treated at a country hospital. Current drug treatment is aspirin 100mg, ramipril 5mg, and atorvastatin 20mg daily. He is obese (body mass index $31 \text{ kg/m}^2$ [18-25]). Glycosylated haemoglobin is 6.0%.

Fasting lipid profile reveals:
- total cholesterol 4.8 mmol/L [2.5-5.2]
- high-density lipoprotein (HDL) cholesterol 0.5 mmol/L [0.9-1.8]
- triglycerides 9.80 mmol/L [0.10-1.85]

Which one of the following is the most effective drug treatment to lower the triglyceride level?

A. Add a bile acid binding resin.
B. Increase the dose of atorvastatin.
C. Add metformin.
D. Change atorvastatin to an alternative statin.
E. Add a fibrate

This patient has extremely high TG and the most effective agent to reduce TG is the fibrate. See explanatory table below

**Therefore answer is E.**
Average effects of different classes of lipid lowering drugs on serum lipids

<table>
<thead>
<tr>
<th>Drug class</th>
<th>Action</th>
<th>LDL</th>
<th>HDL</th>
<th>Trigs</th>
<th>Uses</th>
<th>Side effects</th>
</tr>
</thead>
</table>
| Bile acid sequestrants | bind bile acids in intestines preventing reabsorption of bile acids   | ↓ 15 - 30% | 0 to slight increase | No change | 1) mild to mod elevations of LDL  
2) combination with HMG CoA reductase inhibitors when LDL markedly elevated | GIT disturbances: nausea, bloating, cramping and increase in LFT |
| Nicotinic acid         | 1)Inhibits hepatic production of VLDV  
2)raises HDL by reducing lipid transfer from HDL to VLDL, delay HDL clearance  
3)reduction in plasma fibrinogen | ↓ 10 - 25% | ↑ 15 - 35% | ↓ 25 - 30% | in pts with normal/low HDL (hypoalphalipoproteinemia) | poor tolerability: pruritus, paresthesias, nausea, abnormal LFT |
| HMG CoA reductase      | Reduces intracellular cholesterol → activate protease→ upregulation of expression of LDL receptor gene → reduce serum LDL | ↓ 20 - 60% | ↑ 5 - 10% | ↓ 10 - 33% | Treatment of hypertriglyceridemia | Dyspepsia, Fatigue, abdo pain, diarrhea |
| Gemfibrozil            | exact mechanism unknown, theories:  
a) inhibit lipolysis  
b) inhibit hepatic secretion of VLDL  
c) increase HDL | ↓ 10 - 15% | ↑ 15 - 25% | ↓ 35 - 50% | Elevation of TG or to reduce LDL, TC and apo B in adults with primary hypercholesterolemia or mixed dyslipidemia | ALT/AST increase, GIT disturbances |
| Fenofibrate            | Increase VLDL catabolism by enhancing synthesis of lipoprotein lipase  | ↓ 6 - 20% | ↑ 18 - 33% | ↓ 41 - 53% | Elevation of TG or to reduce LDL, TC and apo B in adults with primary hypercholesterolemia or mixed dyslipidemia | ALT/AST increase, GIT disturbances |
| Ezetimibe              | Cholesterol absorption inhibitors                                      | ↓ 17%  | No change | No change | | |
| Neomycin               | 1)forms insoluble complex with bile acids, similar to bile acid sequestrants  
2) inhibits secretion of apolipoprotein from hepatocyte surface | ↓ 20 - 25% | No change | No change | useful as adjunctive therapy in patients with familial hypercholesterolemia and Lp(a) excess | |