

Case Report

A psoriatic arthritis patient who developed hypertriglyceridemia while receiving adalimumab treatment

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ABSTRACT

Anti-TNF agents have prominent effect on inflammatory diseases and they probably have various effects on lipid metabolism. Adalimumab (ADA) is the first fully human TNF- α antagonist. Our study presents a male patient who developed evident hypertriglyceridemia while receiving ADA treatment. We retrospectively collected data of one psoriatic arthritis patient treated with adalimumab at the University Hospital of Recep Tayyip Erdoğan (November 2016). Adalimumab treatment significantly increased triglyceride from 278mg/dl to 4046mg/dl. The influence of adalimumab treatment on lipid profile seems to be proatherogenic, but further investigation is needed to confirm this hypothesis.

Keywords: Adalimumab, Etanercept, Hypertriglyceridemia, Psoriatic arthritis

INTRODUCTION

Adalimumab (ADA) is the first fully human TNF- α antagonist which is beneficial in many inflammatory diseases such as rheumatoid arthritis, inflammatory bowel disease, ankylosing spondylitis, psoriatic arthritis and it has a similar safety profile with other anti-TNF agents.¹

Anti-TNF agents have prominent effect on inflammatory diseases and they probably have various effects on lipid metabolism.¹

A few studies investigated lipid profile effects of anti-TNF agents, but they have conflicting data.²⁻⁴ In this case, we present a male patient who developed evident hypertriglyceridemia while receiving ADA treatment.

CASE REPORT

A 53-year-old male patient was diagnosed with psoriatic spondyloarthropathy 4 years ago and receiving medical treatment without any disease except psoriatic arthritis. The patient had 25gr/day of alcohol consumption for 20 years. The patient had skin and joint pains despite medical treatment, So ADA 40mg/14days was started subcutaneously. Prior to treatment, a PA chest radiograph was taken, complete blood count, renal and liver parameters, sedimentation rate, C-reactive protein, antinuclear antibody, hepatitis B and hepatitis C serology tests were done. There was no pathologic result in the tests. However, lipid parameters were not evaluated prior to treatment. The patient had no known cardiovascular disease, metabolic syndrome or any other known disease or drug intake except having psoriatic arthritis. The patient had no family history for hyperlipidemia. His body mass index was 26.8kg/m². The patient had

subcutaneous ADA monotherapy once in 2 weeks and his blood tests were done every 4 weeks. In his 8th week, the patient had the following results: TG:4046mg/dl, HDL:20mg/dl, LDL:259mg/dl, TC:677mg/dl and therefore his ADA treatment was stopped and he was hospitalized. He had gemfibrozil 600mg 2x1 and antilipidemic diet. His lipid parameters and biochemical test results were taken periodically. The patient had no acute pancreatitis. Lipid parameters were completely normal 2 weeks after ADA treatment was stopped, so gemfibrozil treatment was discontinued. For his

persisting skin and joint problems, etanercept (ETN) 50mg/week was started subcutaneously.

4 weeks after ETN treatment, skin and joint findings were prominently better (positive clinical outcome according to PSARC). The patient's lipid parameters were deteriorated in 8 weeks under ETN treatment but it was lower than adalimumab's effect and the patient had better skin and joint outcomes, so the treatment was continued. In 12th week of the treatment, lipid profile started to show signs of improvement (Table 1).

Table 1: Table showing the lipid value changes of the patient.

	TG (mg/dl)	TC (mg/dl)	LDL-C (mg/dl)	HDL-C (mg/dl)	VLDL-C (mg/dl)
Ada 4 th week	278	165	73	36	55
Ada 8 th week	4046	677		20	609
5 days after the treatment was stopped	900			28	180
9 days after the treatment was stopped	331		259	32	66
2 weeks after the treatment was stopped	81	163	117	30	16
ETN treatment 2 nd week	328	234	132	36	66
ETN treatment 4 th week	334	132	35	30	67
ETN treatment 8 th week	479			26	96
ETN treatment 12 th week	452	176	51	35	90
ETN treatment 16 th week	263	178	92	33	53
ETN treatment 20 th week	237	252	158	47	47
ETN treatment 24 th week	263	212	108	51	53
ETN treatment 40 th week	190	259	169	52	38

DISCUSSION

TNF- α is a regulatory cytokine which is released by many inflammatory cells and adipocytes.⁵ It has an important role in many immune mediated inflammatory diseases such as inflammatory bowel disease, psoriatic arthritis and rheumatoid arthritis.⁶ TNF- α also has a proatherogenic effect through elevating LDL-C and Triglyceride levels.⁷ TNF- α has an important pathophysiological role in cardiovascular disease by elevating free fatty acids, stimulating lipolysis in adipocytes and inhibition of lipoprotein lipase.³

Many researchers have found out that patients with TNF- α mediated inflammatory diseases had a higher risk for cardiovascular diseases.^{3,8,9} Therefore, in concordance to these researches, treatment with TNF- α antagonists is expected to cause a decrease in TG concentration, therefore resulting an antiatherogenic modification which leads a rise in serum HLD-C. However, there are inconsistent data regarding anti TNF- α agent's effect on lipid profile. There are also researches showing treatment with anti TNF- α causing a proatherogenic modification in the lipid profile.^{10,11} Some researches up to this date

showed hypertriglyceridemia caused by anti TNF treatment.^{7,12} In our case, we observed a significant rise in TG profile therefore causing a proatherogenic lipid profile with 8 weeks of treatment with ADA, an anti TNF- α agent. There is only one case in the literature who had hypertriglyceridemia after using ADA for psoriatic arthritis. Similarly, in 8th week of ADA use, our patient had prominent hypertriglyceridemia as well as a rise in LDL-C and decrease in HDL-c levels leading to a proatherogenic profile. However, our patient was an alcohol user which may explain the sooner and higher rise in triglyceride levels. Another research showed ADA use causing a higher risk for cardiovascular disease.

A few cases reported infliximab and ETN use leading to hypertriglyceridemia in psoriatic arthritis.¹² Some cases showed short term infliximab treatment did not cause any change in total cholesterol, LDL-C, HDL-C and triglyceride levels. In our case, after switching to ETN treatment, a proatherogenic condition was observed. However, a significant improvement was observed in the 12th week of treatment.¹² In Garces et al. research, ETN effects were found less atherogenic than infliximab which supports our findings in this case.¹³ They showed a

prominent increase in HDL after 1 year of ETN treatment and showed no change in cholesterol and LDL levels. Our case also showed an improvement in HDL-C levels under ETN treatment. Garces et al. showed significant rise in triglyceride levels after ETN use but there is no reasonable explanation for this situation.¹³

CONCLUSION

Results obtained from our patient after using ADA and ETN showed the complexity of TNF super family on lipid metabolism. There is inadequate research about lipid profile effects of anti-TNF treatment which is limited to case reports and small or short-term researches. Prospective studies are required mainly for lipoprotein plasma concentration modulations of anti-TNF treatment. It is also needed for finding out which anti-TNF formulation has more pro-atherogenic effects. Finally, close follow-ups on lipid profile for patients under anti-TNF treatment in clinical medicine are recommended.

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