Original Article

Myalgia Association with Atorvastatin, Rosuvastatin and Simvastatin

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ABSTRACT

Objective: To determine the myalgia association with atorvastatin, rosuvastatin and simvastatin
Study Design: Descriptive study
Place and Duration of Study: This study was conducted at the cardiac ward, civil hospital from March 2013 to August 2013
Materials and Methods: This study was done by taking the feedback of patients on a questionnaire set in conciliation of objectives. Data collection was done for six months. Myalgia was confirmed clinically via many questions asked directly to patients and its intensity through visual analog scale.
Results: Study involved 300 patients between age 25-70 years and mean age was 55.7yrs ±7.575. Male patients were 218(72.67%) whereas females were 82(27.33%). Myalgia prevalence was categorize according to the type of statin as 10% in atorvastatin group, 11.34% in Rosuvastatin group and 16% was found in patients those were under treatment of simvastatin. In the atorvastatin group myalgia was found positively correlated with dose of atorvastatin as well as 5% cases were found with dose of 40mg. in the Rosuvastatin group majority of the cases 5.34% were found with 20mg, while in simvastatin group 8% cases were found with 10mg simvastatin. According to the VAS, 5% case was found with mild myalgia and 6.66% were noted with moderate myalgia while severe condition was not found in any case.6% cases were found with moderate myalgia out of 133 cases in Rosuvastatin group, 8% cases were noted with moderate myalgia out of 50 cases in simvastatin group, while only 3% patients were found with moderate myalgia in atorvastatin group out of 100 cases.
Conclusion: Simvastatin is highly associated with myalgia as compare to others but not significant. Rosuvastatin, Atorvastatin and Simvastatin are positively associated with severity of myalgia after increases the dose.
Key Words: Rosuvastatin, Atorvastatin, Simvastatin, Myalgia

Citation of article: Ahmed S, Memon N, Memon AA, Shah SS, Ahmed Z, Ahmed S. Myalgia Association with Atorvastatin, Rosuvastatin and Simvastatin. Med Forum 2017;28(3):98-101.

INTRODUCTION

For the prevention CVD, developing part of inhibitors of 3-OH-3-methyl glutaryl coenzyme A reductase part of statins are horribly has been obvious in the clinical practice. As statins reduction LDL levels in cases with higher CVD chance, this molecule turned into the principal line operator for essential and auxiliary prophylaxis of MI and in addition in patients with adjusted and interrupted level of lipid.[1-3] For body cholesterol biosynthesis, there is the enzyme indicated as 3-OH-3-methyl glutaryl co-enzyme A reductase. Statins basically are firmly comparative with this enzyme consequently turning into its rival along these lines causes its modest hindrance. Statins is demonstrated with its wide therapeutics record with great safety for CVD prevention.[4-10]

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Received: January 03, 2017; Accepted: February 10, 2017

In the first place statin was acquired from fungi (a form "Penicilliumcitrinum"). Right now statins are arranged in fundamentally in three generations, 1st generation incorporates Lovastatin, pravastatin and the fluvastatin and, 2nd generation incorporates simvastatin and the atorvastatin while 3rd generation has rosuvastatin.[11,12] Myotoxicity because of Statin Cholesterol decrease in the myocyte membrane is because of unsettling influence of layers steadiness subsequent in disease of the muscles. A large number of the studies clarify that these kind of human skeletal muscles issues are because of diminishing of transitional pathways in the cholesterol biosynthesis. Farnesyl pyrophosphate is in center in the arrangement of ubiquinone recognized as co-enzyme Q10. Other new components clarify that this pathology of muscle is on the grounds that statins causes this cholesterol unsettling influence in iso-pentanylation of seleno cysteine-tRNA.[13] Statins additionally indicate pleiotropic impacts including enhancement of expanded nitric oxide accessibility available for use, endothelial dysfunction antioxidant effects, anti-inflammatory, immune-altering property and atherosclerotic plaque strength. Inhibiting hypertrophy of the heart muscles is new area of interest among their pleiotropic effect.[14] Purpose of our study

was to determine the myalgia association with atorvastatin, rosuvastatin and simvastatin.

MATERIALS AND METHODS

Descriptive study was doneat cardiac ward, civil hospital, Hyderabad by taking the feedback of patients on a questionnaire set in conciliation of objectives and myalgia severity was checked by visual analog scale. Data collection was done for six months from March 2013 to august 2013. Cases having myocardial infarction and on statin therapy for the secondary prevention had selected. Patient with presentation of any other illness which can cause the muscular pain was excluded. Informed consent had taken verbally from all cases those were agreeing to participate in the study. All the patients were categorized in three groups according to treatment as in group 1. Atorvastatin was advised to one hundred cases of MI, group 2 was contain 150 cases and advised rosuvastatin and Simvastatin was advised to fifty cases. Drugs were advised and doses were selected by senior consultant cardiologist according to the patient's condition. Patients were directed for not to alter their normal routine. All the data was recorded in the proforma. The data was analyzed in SPSS version 20.0.

RESULTS

Total 300 cases were selected in the study out of them 218 were male and 82 were female, myalgia was found in 35 cases out of 300. Mean age of the patients was 55.7yrs ±7.575. Table:1

Myalgia prevalence was categorize according to the type of statin as 10% in atorvastatin group, 11.34% in Rosuvastatin group and 16% was found in patients those were under treatment of simvastatin. Fig:1

In the atorvastatin group myalgia was found positively correlated with dose of atorvastatin as well as 5% cases were found with dose of 40mg. In the Rosuvastatin group majority of the cases 5.34% were found with 20mg, while in simvastatin group 8% cases were found with 10mg simvastatin results showed in Table:2

Table No.1: Gender distribution according to Myalgia n=300

Gender	Myalgia		Total
	With Myalgia	Without Myalgia	
Male	28	190	218
Female	07	75	82
	35	265	300

Myalgia was categorized according to the VAS, 5% case was found with mild myalgia and 6.66% were noted with moderate myalgia while severe condition was not found in any case. Fig:2

6% cases were found with moderate myalgia out of 133 cases in Rosuvastatin group, 8% cases were noted with moderate myalgia out of 50 cases in simvastatin group, while only 3% patients were found with moderate myalgia in atorvastatin group out of 100 cases. Table:2

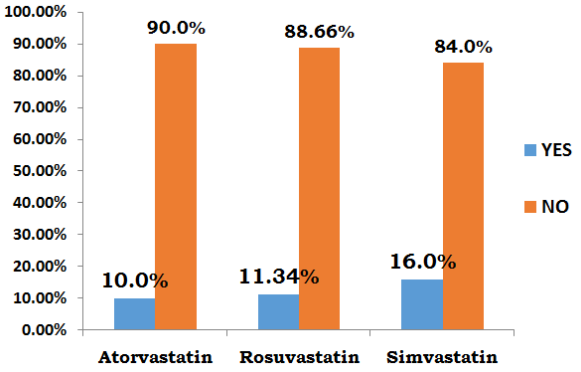

Figure No.1:Statin distribution according to occurrence of Myalgian=300

Table No. 2:Myalgia according to statindose n=35

Dose of statin	Myalgia	
	Frequency	Percentage
Atorvastatin n=100		
10mg	01	1.0%
20mg	04	4.0%
40mg	05	5.0%
Total	10	10.0%
Rosuvastatin n=150		
05mg	01	0.66%
10mg	06	4.0%
20mg	08	5.34%
40mg	02	1.34%
Total	17	11.34%
Simvastatin n=50		
05mg	01	02.0%
10mg	04	08.0%
20mg	03	06.0%
Total	08	16.0%

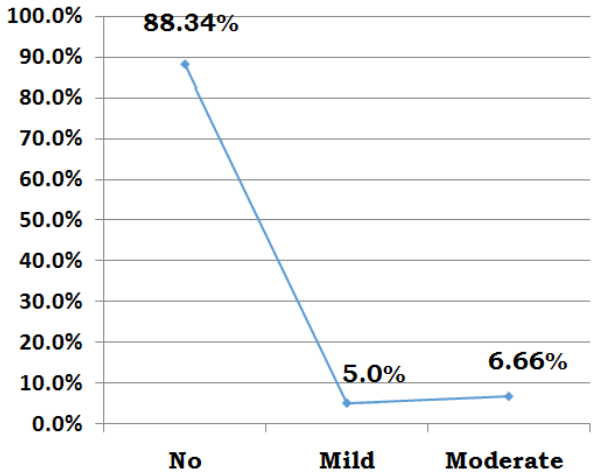

Figure No.2: Myalgia according to VAS n=300

Table No. 3: Severity of myalgia according to type of statin n=300

Dose of statin	Myalgia			
	No	Mild	Moderate	Total
Atorvastatin	90 (90%)	07 (7%)	03 (3%)	100 (100%)
Rosuvastatin	133 (88.66%)	08 (5.34%)	09 (6%)	150 (100%)
Simvastatin	42 (84%)	04 (8%)	04 (8%)	50 (100%)

DISCUSSION

Statins are the extremely influential and well established category of the drugs. Several clinical and experimental studies supportedits uses for the wide range of indication and clinical conditions. Statin-linked to myopathy signify one of the commonest and frequent adverse effects of these medicines andalso estimated that up to two 3rd of all statin-associated complications involve with the muscle tissue.[14] It is characterized by the symmetrical involvement of large and proximal muscle groups, in particular the legs.[13] Observational studies suggest that 10-15% of statin users develop some type of muscle problem.[15] Similarly we found 11.33% myalgia in patients those were under treatment of statin. We had compared three statins to assess the myalgia as well as 100 patients were on Atorvastatin and out of them 10% patientswere with complaint of Myalgia. Our findings are comparable with the some previous studies of Seip et al[12] and Colhoun et al[13] reported that myalgia is the commonest occurring complication after Atorvastatin taken.

In this series simvastatin and atorvastatinwere without any serious complication of drug but showed significant incidence of the myalgia in the cases as; 10% and 16% respectively. Similarly pedersen et al[14] and Abourjaily et al,[15] reported comparable results.

In this study 150 cases were under treatment of rosuvastatin, out of them in 11.34% patients developed myalgia, in the contrast several studies of Mora et al,[17] Hoek et al[18] and Crouse et al[16] demonstrated that rosuvastatin at various elevated doses showed positive association with severity of myalgia. As well as we found 8(14.54%) out of 55 patients showed complained of myalgia after taking Rosuvastatin 20mg complained. On other hand Mora et al[17] also stated that myalgia is the commonest complication of drug reaction which may developed caused by discontinuation of treatment and further stated that 7.6% cases those were on crestor 20mg showed complain of myalgia as compare to 6.6% on the placebo.[17]

Total 50 cases were on simvastatin out ofthem 8(16%)patients showed complaint of the Myalgia was constant with several studies as well as Jones et 19, Larsen et al[20] and Bannwarth B et al;[21] reported that the myalgia is the commonest complication of simvastatin. In our series cases those were advised statin, showed soon myalgiasigns in response relationship those were giving clear symptomes of myopathy development in the long term, while no any case was noted with myositis or rhabdomyolysis, since newest cases had enrolled those were advised statin treatment at 1st time, therefore for the development of myopathy required prolonged duration, similarly in many other studies also reported similar findings. In this series showed that statins is positively related with effects of myalgia large quantity of the population taking it and showing big prevalent myalgia, which started even at the low doses and for short duration, while majority of the patients with high dose were seen.

CONCLUSION

Simvastatin is highly associated with myalgia as compare to others but not significant. Rosuvastatin, Atorvastatin and Simvastatin are positively associated with severity of myalgia after increases the dose. Myalgia proportion on three studied statins was different from globalresearch studies which demands more extensive research needed particularly on the gene-myalgia association.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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