Effects of Age Factor on The Compliance of Statin Treatment in Hyperlipidemic Patients

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Abstract

Objective: To determine the effects of age factor influencing the compliance of statin treatment in hyperlipidemic patients.

Methods: This cross sectional research was conducted at Department of Pharmacology& therapeutics (PUMNHSW-SBA) in co-operation of department of Cardiology &Medicine PMC HospitalNawabshah from1st July 2017 to 31st January 2018. 100 patients were included having hyperlipidemia, included through convenience sampling technique. Two groups were made age from 31- 50 years and other age from 51 to 70 years. Drug compliance was measured by using Moriskyscale and detailed history by using the pre-formed proforma.

Results: The results show that, elderly patients group, age from 51-70 years (56% of 100 patients) and younger patient group ,age from 31-50 years (44%) both these group were adherent to statin therapy (p-0.725), according to PDC (proportion of days covered) it was 80% in elder group. Their compliance was measured through Morisky scale. These finding shows that age factor has no significant influence on adherence or compliance of statin therapy which is necessary for high risk elderly patients as well important for younger age patients so that they may live a life without comorbiditiesof hyperlipidemia.

Conclusion: Age factor somewhat affecting the compliance of statin treatment in hyperlipidemic patients. It shows better compliance among high risk population of age above 50 years regarding PDC which was >80%, and lesser <80% in younger patients, however better counseling and information regarding benefits of continous statin therapy may increase the compliance level in all age group patients.

Key Words: Compliance. Statin therapy. Hyperlipidemia.

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INTRODUCTION

Compliance is a key factor related with every single pharmacological treatment plan. Compliance with medicinal suggestions, particularly with medication treatment, has been perceived to speak to a mind boggling challenge since its initially referencing by Hippocrates around 2400 years ago.[1]Compliance is defined as the degree of correspondence of the actual dosing history with the prescribed drug regimen.[2] Compliance with statin (HMG-CoA reductase inhibitors) drug therapy may give better outcomes in real life than in clinical trials which are time limited, because fifty percent hyperlipidemic patients halt statin therapy with in first year of initiation.[3]

The World Health Organization defines "adherence as the degree to which the person's behavior corresponds with the agreed recommendations from a healthcare provider".Many factors affect compliance with anti hyperlipidemic drug therapy. Good doctor-patient relationship,

conviction of the efficacy of treatment and increased age are associated with compliance. Although related, "Compliance" suggests that the patient is passively following the physician's orders, while "adherence" acknowledges that the patient is part of the decision- making process, making this the preferred term.[4]

Assessment of compliance is difficult among asymptomatic patients 50% having not a good compliance as per prescription, although studies by American College of Cardiology and American Heart Association tell briefly that there is decrease in hypercholesterimia by use of statins, with decline range of 25-50% in plasma lipid levels.[5]

Good compliance can be achieved by good patient-doctor relationship, physician approach to his knowledge and counseling to his patient and relatives and by good health providing facilities which bear the responsibility of provision of statin medication on regular basis without interruption.[6]

Hyperlipidemia (elevated levels of total cholesterol (TC), triglyceride (TG), low density lipoprotein (LDL),) is the principal risk factor for heart diseases along with positive family history of heart disease and hypertension. Hyperlipidemia accounts a major risk of deadly cardiovasular disorders, this state of blood is major leading cause of mortality worldwide round about 31% ratio annually.[7] Patients suffering from hyperlipidemia does not take care much about it because it is an asymptomatic disease, untilseveraly plasma levels are increased, so in early stages patients do not feel the need of taking the medication as prescribed by the doctors.[8]

Statins are prescribed by the physicians for lowering the bad lipids of body.[9]

Statin therapy decrease the acute MIs attacks from 21% to 7% .[10]

This rate is still reduce able if attention is kept towards the compliance of the statin therapy especially in older age individual where extra effort is required by the patients and their attendants for taking the drugs on prescribed time schedules. Compliance of statin therapy has been reduced in chinese and other Asian countries due to multifactors.10Compliance with statin treatment in the initial 2 years of medicine may diminish hospitalization rates and direct restorative expenses in the consequent year.[11]

M ATERIALS AND METHODS

This cross sectional study was researched at PUMHSW-Nawabshah by Pharmacology and Therapeutic department in collaboration with Medical and Cardiology departments of PMC civil hospital Nawabshah. 100 patients of either sex were included having hyperlipidemia (without any other co- morbidity) and they were on statin therapy, age limit was started from 31 to 70 years.

PUMHSW- Ethical review committee approved this study and then the data was collected from patients of hyperlipidemia from OPDs of medical and cardiology departments of Peoples Medical College Hospital, after taking in print consent. All the parameters like age, gender and socioeconomically class were registered over question sheet Proforma.The patients completed 07 visits as per timetable given, as first visit on day 1, upto 7th visit on day 90, fortnightly.Morisky Scale was used to measure the compliance or adherence of patients with statin drug therapy. Marked empty blistered were collected back from respondents on each visit.Morisky scale was strictly followed for checking of the

compliance along with serum cholesterol (f) level performed at diagnostic and research laboratory PUMHSW-Nawabshah. Data was analysed by SPSS software.

RESULTS

There were 100 diagnosed hyperlipidemic patients of both sexes included in this study, Age ranging between 31 to 70 years. According to age there were younger patients (Age 31- 50 years) and older age patients (age 51-70 years) number of patients were 44 & 56 respectively.The mean age was (49.45± 9.72) years and male : female ratio was 54: 46 so the higher ratio was of male patients (see Table.1) and average serum cholesterol was 231.83± 15.9mg/dl (see Table 2).

Analysis of study showed that 40 patients (71.42%) from total of 56 older patients, age b/w 51-70 years showed better compliance of statin treatment according to the management period, Proportion of Days Covered (PDC) which was > 80%,Whereas remaining 16 patients (28.57%) were non compliant PDC was <80%. Other 30 patients (68.18%) from total of 44 younger age b/w 31-50 years showed compliance of statin therapywith PDC > 80% and 14 (31.81%) showed non compliance. Difference in results of compliance between both age groups was statistically non-significant with p- 0.725

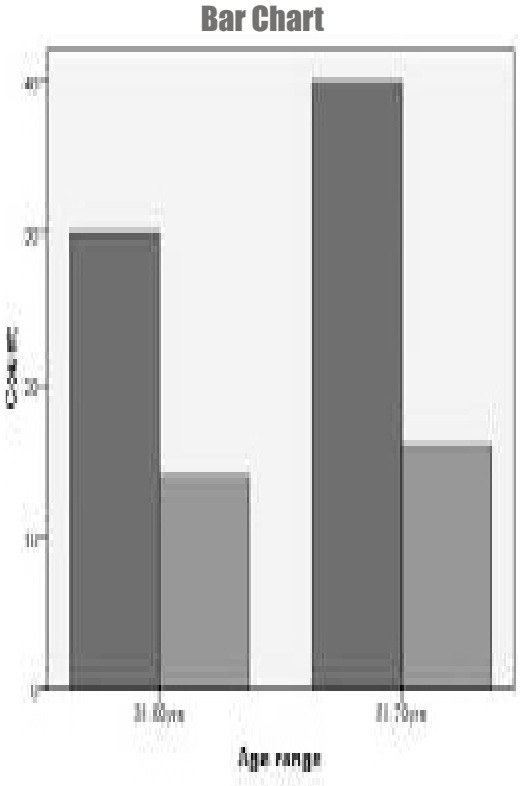
Table 1: STUDY VARIANTS

Variable: Age Mean ±SD	**49.45± 9.72**
Variable: Gender Male: female ratio	**54: 46**
Cholesterol level	**231.83± 15.9 mg/dl**

Table2: comparison of Cholesterol level with difference in age.

Variable Age	Cholesterol in mg/dl			P-Value
	201-220 mg/dl	Upto 240 mg/dl	Upto 260 mg/dl	
31-50 years	11	26	7	0.882
51- 70 years	14	35	7	

Figure 1: Comparison of Statin compliance according to Age groups



DISCUSSION

In this study we found that higher age patients (Age 51-70 years) showed better compliance with statin therapy with >80% PDC, which is a good sign for such patients because individuals of this age period are more on risk of developing co-morboties like cardiovascular diseases due to presence of hyperlipidemia, as evident from studies of Muradand et al & Saira Bashir et al that increased hyperlipidemia affected most of the individual who are older age especially the age b/w 35 to 60 years are at higher risk.[12,13] Whereas the younger age patients showed slightly less compliance with statin therapy<80% PDC.It was also found in a study by American researchers that younger age and other multiple reasons decrease the compliance of statin therapy.[14] Most of the elderly patients having multiple diseases and multiple drug therapies which are going simultaneously with statin therapy, elderly patients are more conscious about their diseases than young ones, they are also cared out by their off springs and close relatives and attendents. Kathleen A Foley et al, also indicated in their study that increase age is associated with good compliance.[15]As this study was done on the diagnosed patients so old age patients had good compliance as compared to younger age, same findings also observed according to Justin Gatwood and James E Bailey's study young ones patients who had recently initiate the statin therapy had low compliance.[16] Non compliance of drugs among patients of other disease also present as Hadji P et al also observed non compliance of anti-osteoporosis treatment in age group<60 years that is high risk group, compared to those in the higher age group of (61–70 years),[17]same influence of age factor seen in our study.

Schultz JS concluded that lower compliance seen in women and younger high-risk patients who were hyperlipidemic b/c of fewer or less number of outpatient visits and avoidance or lower incidence of laboratory testing for lipid profiles.[18]Kiortsis DNet al tell that compliance among age more than 65 years was 25.4% for primary prevention, 36.1% in chronic CAD pateints and 40% in acute coronary syndrome as secondary prevention in first few years of illness, some patients were temporarily noncompliant. Hence, improving consistence to statin treatment would be gainful for patients and other human services partners [19]A Danish study by Svensson et al showed that 26,314 persons (16%) on statin therapy in their study become nonpersistent absolutelywithin few months of initiation of therapy, most of those were young aged (45 years) or very old age more than 74 years.Causes of their noncompliance were living in small muncipalties in rural areas, divorced ladies, multiple drug therapies and co morbidities so they were unable to reach at the medical facilities and cost of drugs etc.[20] Shroufi and Powles, newly performed a simulation study showing that improving consistency to statins by 50 % will prevent the twofold as many additional other deaths, by this approach we can reduce the CVD cases from near 19% to 15.5 % by good statin therapy compliance.[21]

C ONCLUSION: Compliance was better in higher age patients particularly above age of 51 years according to PDC that was >80% and in younger age patients 31-50 years of age PDC was <80%. That means age is also a factor affecting the compliance in hyperlipidemic patients on statin therapy.

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