
.()

LFA-I/ICAM-I

.()

IL-8

.()

.()

()

random block

.()

()

(CXCL)10

γ

IL5 IL4

outcome

(CCL)17

Mann- t-test, χ^2

(TH1, TH2)T

P-value < 0.05

Whitney

/ / /

()
()

(LD, HD, minipill)]
[

(GINA)

< <)
() ()

FEV1

(hs-CRP,ESR

() () -
()

) () OCP

(%)

hs-CRP (%)

hs-CRP

(P-value=0.39)

(ACT)

)

(

(%)

(%)

Feridmann

/

() ACT

/

(SD= /)

(SD= /)

(P- value<0.001)

Kolmogrov-

Repeated measure ANOVA

Smirnov

FVC

hs-CRP,ESR,FEF25-75%

T-test

()

(CI=)		$\bar{x}(\pm SD)$	$\bar{x}(\pm SD)$	
- / (- / _ /)	P= / *	/ \pm /	/ \pm	FEV1
- / (- / _ /)	P= /	/ \pm /	/ \pm /	FVC
- / (- / _ /)	P= /	/ \pm /	/ \pm /	FEV1/FVC

T-test *

/ / /

...

:

(CI=)		$\bar{x}(\pm SD)$	$\bar{x}(\pm SD)$	
/ (- / _ /)	*P= /	/ ± /	/ ± /	FEF25-75%
- / (- / _ /)	P= /	- / ± /	/ ± /	HsCRP
- / (- / _ /)	P= /	- / ± /	- / ± /	ESR

Mann Whitney *

hs-CRP

Ridker

mg ()

CRP

()

(mg)

FEV1 PEF

Menzies

()

) CRP

(

()

()

mg

mg

ESR CRP

()

1. Barnes PJ. Asthma. In: Fauci AS, Braunwald e, et al. Harrison's Principle of Internal Medicine. 17th ed .Philadelphia; Mc Graw Hill, 2008: 1596-1606.
2. Vincent SD, et al. Exasperations of Asthma: Aqualitative Study of Patient Language about Worsening Asthma. *Med J AUST* 2006; 184(9): 451-4.
3. Masoli M, Fabian D, Holt S. The Global Burden of Asthma: Executive Summary of the GINA Dissemination Committee Report. *Allergy* 2004; 59(5):469-78.
4. Holt P G, et al. The Role of Allergy in the Development of Asthma. *Nature* 1999; 402: B12.
5. Weitz Sch, Midt G. Statis as anti inflammatory agents. *Trends Pharmacology Sci* 2002; 23(10): 482-6.
6. Trever A, Katzung B, Masters S. Katzung and Trevers Pharmacology Examination and Board Review. 8th ed. New York; Mc Graw- Hill, 2007: 324-6.
7. Hothersall E, Mcsharry C, Thomson NC. Potential Theterapeutic Role for Statins In Respiratory Disease .*Thorax* 2006; 61: 729-734.
8. Stacey E, et al. Use Reduces Decline in Lung Function. *American Journal of Respiraty and critical care* 2007; 176: 742-747.
9. Paumell Rejano, et al. Acute Anti-Inflammatory Properties of Statins Involve Peroxisome Proliferator- Activated Receptor- A Via Inhibition of the Protein Kinase C Signaling Pathway. *Circulat Research* 2006; 98: 361-369.
10. Samson KTR, et al. Inhibitory Effects of Fluvastatin on Cytokine and Chemokine Production by Peripheral Blood Mononuclear Cells In Patients With Allergic Asthma. *Clinical & Experimental Allergy* 2006; 36: 475.
11. Mckay A, Leung BP, Mcinnes IB. A Novel Anti- Inflammatory Role of Simvastatin In Murine Mode of Allergic Asthma. *The Journal of Immunology* 2004; 172: 2903-2908.
12. Hothersall EJ, et al. Effects of Atorvastatin Added To Inhaled Corticosteroids On Lung Function And Sputum Cell Counts in Atopic Asthma. *Thorax* 2008; 63:1070-1075.
13. Daniel Menzies, et al. Simvastatin Does Not Exhibit Therapeutice Anti- Inflammatory Effect in Asthma. *American Academy of Allergy* 2007; 119: 328-35.
14. Mc Carey DW, et al. Trial of Atorvastatin In Rheumatoid Arthritis (TARA): Double – Blind, Randomized Placebo – Controlled Trial. *Lancet* 2004; 363: 2015- 21.
15. Ridker PM, et al .C- Reactive Protein Levels and outcome After Statin Therapy .*The New England J M* 2005; 352: 20-28.
16. Gibson PG, Et Al. Self Management Education and Regular Practitioner Review for Adults with Asthma .*Cochrance Database Sys Rev* 2003: (1):CD001117.
17. Castro M, et al. Asthma Program Prevents Readmission in High Healthcare Users. *Am J Respire Crit Care Med* 2003; 168: 1095.
18. Gibson PG, Powell H, Coughlan J, Wilson AJ, Hensels MJ, Abramson M, et al. Limited(Information Only) Patient Education Programs For Adults with Asthma. *Cochrane Database Syst Rev* 2002(2):CD001005.
19. Cabana MD, Slish KK, Evans D, Mellins RB, Brown RW, Lin X, et al. Impact Care Education on Patient Outcomes. *Pediatrics* 2006; 117:2149-57.
20. Shah S, Peat JK, Mazurski EJ, Wang H, Sindhusake D, Bruce C, et al. Effect of Peer Led Programme for Asthma Education In Adolescents: Cluster Randomised Controlled Trial .*BMJ* 2001:322(7286):583-5.

Effect of Atorvastatin on Indices of Chronic Asthma in Patients under Treatment with High Dose Inhaled Steroid or Oral Steroid

Alavi S.A.(MD)¹- Nejatifar F.(MD)¹- Forghan parast K.(Ph D)²- Sobhani A.R.(Ph D)³- Mortaz G.(MD)¹

*Corresponding Address: Respiratory and Tuberculosis Research Center, Razi Hospital, Guilan University of Medical Sciences, Rasht, IRAN

E-mail: aalavi_foumani@yahoo.com

Received: 27/Jul/2009 Accepted: 30/Sep/2009

Abstract

Introduction: Statins are the most common type of cholesterol- lowering drugs which have anti-inflammatory properties that may be beneficial in the treatment of inflammatory diseases such as asthma. Regarding to examine new medications for asthma management due to the side effects of existing routine asthma treatments, statins are one of drugs which have been suggested recently.

Objective: Effect of atorvastatin on lung function and airway inflammation.

Materials and Methods: In this triple blind clinical trial study sixty seven patients with moderate to severe asthma were entered. They were divided to two groups randomly. Case group were treatment by oral atorvastatin 40 mg daily and control group were treatment by placebo on lung function.

Patients were visited and their lung volumes (FEV1, FVC, FEV1 /FVC, FEF 25-75%) and inflammatory biomarkers (ESR, Hs-CRP) and asthma control questionnaire score were measured every 4 weeks during the course. Fifty patients completed the study.

Data was analyzed by χ^2 , t-test and Mann-Whitney test. P value <0.05 was significant.

Results: There were no significant differences in lung volumes and inflammatory biomarkers between atorvastatin and placebo groups. We observed significant differences in the trend of lung volumes include FEV1, FEV1/FVC and FEF 25-75 % in each of the atorvastatin and placebo groups during the course of study (p<0.001) but there were no significant differences between them. There were significant differences in the trend of asthma control according to asthma control questionnaires in each of atorvastatin and placebo groups during the course (p <0.001).

Conclusion: According to this study, atorvastatin does not show any significant anti-inflammatory activity in patients with moderate to severe asthma therefore it could not be beneficial for the short term treatment of asthma. But it seems that regular visit and patient education could lead to better asthma control.

Key words: Asthma/ Atorvastatine/ Glucocorticoids

Journal of Guilan University of Medical Sciences, No: 73, Pages: 66-72

1. Respiratory and Tuberculosis Research Center, Razi Hospital, Guilan University of Medical Sciences, Rasht, IRAN

2. Faculty of Medicine, Guilan University of Medical Sciences, Rasht, IRAN

3. The Research vice- Chancellorship, Guilan University of Medical Sciences, Rasht, IRAN