

## چکیده ی انگلیسی

**Comparative study of carotid intima-media thickness and clinical and laboratory markers of systemic atherosclerosis in type 2 diabetic patients in diabetes clinic of Imam Khomeini Hospital, Ardebil, Iran****S.Taha Ghorayshie, H. Annarie MD, M. Iranparvar MD****Abstract**

*Introduction:* Diabetes mellitus will be the leading cause of death worldwide in near future. Among the major causes of mortality on the course of diabetes are vascular incidents which basically arise from atherosclerosis. Atherosclerosis can be accelerated under influence of various risk factors among which are diabetes and ensuing hyperglycemia.

In addition to various clinical and laboratory risk factors such as male sex, smoking, hypertension, dyslipidemia, and obesity that have been described for atherosclerosis, there has been a remarkable consideration for imaging techniques that can visualize atherosclerosis at different stages of its formation. Among these techniques is assessment of intima-media thickness (IMT) of carotid arteries whose relationship with cardiovascular risk factors and vascular incidents has been subject to several studies.

In this study carotid IMT of type 2 diabetic patients and its relationship with a number of clinical and laboratory markers of systemic atherosclerosis has been investigated.

*Methods and Materials:* A random sample of 100 type 2 diabetic patients who referred to diabetes clinic of Imam Khomeini Hospital of city of Ardebil was studied.

A questionnaire was designed to record clinical and laboratory markers of systemic atherosclerosis. Relative severity score *or* relative risk score of atherosclerosis based on existence of 5 or more out of 8 atherosclerosis markers (male sex, smoking, hypertension, dyslipidemia, lack of regular exercise, obesity, severe mental stress or depression, and abnormal Hb A<sub>1C</sub> levels indicating chronic hyperglycemia) was determined for each patient. IMT was determined ultrasonographically at six sites of carotid system on the left and right sides including common carotids, carotid bulbs, and internal carotids. Two average amounts of IMT measurements were calculated; total average of IMT measurements at all six sites of the carotid system and average of IMT measurements of the two carotid bulbs. The two average amounts of IMT were compared with age-normal IMT for each patient. Severity of increase in IMT averages was categorized and along with data from clinical and laboratory markers of atherosclerosis were collected and analyzed by SPSS software.

*Results:* The sample consisted of 41 men and 59 women who were between ages of 33 and 87 years. The mean age of the patients was 58.5 years.

In this study more than 80% of patients had above normal IMT measurements. The most strong relationships between atherosclerosis risk factors and severity of increase in IMT were held by male sex, smoking, lack of regular exercise, severe mental stress or depression, dyslipidemia and inappropriate blood glucose control (based on Hb A<sub>1C</sub> levels), respectively.

In contrast, there were no significant relationships between hypertension and obesity with severity of IMT increase.

Relative severity or risk score of atherosclerosis also had a strong relationship with severity of IMT increase.

*Conclusion:* Seemingly, diabetes has an intense effect on IMT changes.

Furthermore, considerable roles of sex, smoking, lack of regular exercise, and severe mental stresses and depression in IMT increase have been noted. This study has also highlighted the significant association between abnormal IMT and higher number of atherosclerosis risk factors. The lack of relationships between hypertension and obesity with severity of IMT increase might be attributed to extensive use of antihypertensive medications and high prevalence of obesity among type 2 diabetic patients.

*Keywords:* Type 2 diabetes mellitus, Carotid Intima-Media Thickness

Systemic Atherosclerosis, Ultrasonography