



## Clinical Correlates of Severe Internal Carotid Artery Stenosis

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DOI: [10.5281/zenodo.14613882](https://doi.org/10.5281/zenodo.14613882)

Submission Date: 05 Dec. 2024 | Published Date: 08 Jan. 2025

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### Abstract

*In this outpatient study, carotid ultrasonography was used to study 376 stable patients. It was found that patients with severe internal carotid stenoses had a clinical profile that was different from those with lesser degrees of internal carotid disease, and from normal patients. Such a profile may help alert clinicians to the possibility of severe internal carotid disease in their patients.*

**Keywords:** *Severe internal carotid stenosis clinical correlates.*

## Introduction

Severe internal carotid artery (ICA) disease is associated with serious neurologic complications. Many articles have been written about various aspects of carotid disease including risk factors. However, no study has focused specifically on severe ICA stenosis, in terms of clinical correlates that could create a profile of these patients, and separate them from those with lesser degrees of ICA disease, and from normal patients. This study examines this issue.

## Methods and Results

High-resolution ultrasonography with spectral and color Doppler was used to study 376 stable outpatients for possible carotid stenosis. There were 198 males and 178 females, ages 61 to 86 years of age. All tests were performed by certified vascular sonographers. The patients were divided into four groups: Group 1 (n=109) normal carotids, Group 2 (n=160) mild disease-ICA plaque or less than 30% stenosis, Group 3 (n=40) moderate disease-30 to 70% ICA stenosis, Group 4 (n=67) severe disease-70% or more ICA stenosis. All stenoses of 70% or more were confirmed by magnetic resonance angiography. Clinical variables were obtained at the time of the sonogram. Results showed no significant differences in age, total cholesterol, LDL, HDL, TG, or diabetes between the four groups. Patients with any carotid atherosclerosis (Groups 2,3,4) had a higher incidence of coronary disease, coronary bypass, and treatment with a statin drug than Group 1. Groups 3 and 4 had a similar incidence of CVA (14.9%), TIA (16.4%), and abnormal EKG (68%), which was significantly higher than Groups 1 and 2. Group 4 patients did have a high incidence of hypertension (57.4%) and hyperlipidemia (68.1%), but these did not differ significantly from patients in the other 3 groups. Group 4 had the highest incidence of smoking (48.9%) and carotid bruits (51.0%) of all groups. Thus, patients in Group 4 had a clinical profile similar to patients in Group 3, except for a higher incidence of smoking and carotid bruits. All tests were significant a p values less than 0.05.

## Discussion

Risk factors for carotid disease have been extensively reported (1-4), and are basically similar to risk factors for coronary artery disease. Many studies have reported the distribution of carotid artery lesions in the common, external, and internal carotids (5). This study, however, focuses specifically in the internal carotid artery because of its significant association with stroke and TIA. This study concludes that severe ICA disease should be suspected in patients having risk factors for atherosclerosis, (especially smoking), who also have a carotid bruit, abnormal EKG, or a history of a cerebrovascular event. This clinical profile for possible severe ICA stenosis found in this study may help alert the physician to the possibility of severe ICA stenosis in patients fitting this profile. Further larger studies that specifically target ICA stenoses may be of significant value.

## References

1. Bir S, Kelley R. Carotid atherosclerotic disease: a systematic review of pathogenesis and management. *Brain Circ* 2022;8(3):127-136. PMID 36267431. doi 10.4/03/bc.bc3622.
2. Salonen R, Seppanen K, et al. Prevalence of carotid atherosclerosis and serum Cholesterol levels in Eastern Finland. *Arteriosclerosis* 1988;8:1-5.
3. Pujia A, Rubba P, et al. Prevalence of extracranial carotid artery disease detectable by echo-Doppler in an elderly population. *Stroke* 1992;23:818-822.
4. Dempsey R, Moore R. Amount of smoking independently predicts carotid artery atherosclerosis severity. *Stroke* 1992;23:693-696.
5. O'Leary D, Polak J. Distribution and correlates of sonographically detected carotid artery disease in the Cardiovascular Health Study. *Stroke* 1992;23:1752-1760.

### CITATION

Robert M.P. (2025). Clinical Correlates of Severe Internal Carotid Artery Stenosis. In *Global Journal of Research in Medical Sciences* (Vol. 5, Number 1, pp. 5–6).

<https://doi.org/10.5281/zenodo.14613882>



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