

# This Week's Citation Classic

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**Bruschke A V G, Proudfit W L & Sones F M, Jr.** Progress study of 590 consecutive nonsurgical cases of coronary disease followed 5-9 years. I. Arteriographic correlations. II. Ventriculographic and other correlations. *Circulation* 47:1147-53; 1154-63, 1973. [Depts. Clin. Cardiol. and Cardiovasc. Dis., Cleveland Clinic Foundation and Cleveland Clinic Educ. Foundation, OH]

**Mortality and the occurrence of myocardial infarction were the main end points considered in a follow-up study on 590 patients with coronary artery disease documented by angiography. The angiographic findings proved to be of high predictive value, exceeding that of any of the other available clinical data. [The SC7® indicates that these papers have been cited over 595 times in 487 publications since 1973.]**

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"At conferences during the early days of coronary surgery, it often happened that a thoracic surgeon showed beautiful angiographic evidence of a successful surgical intervention and subsequently claimed that that patient would certainly have died if it had not been for his prompt and adequate action. This never failed to leave the audience with mixed feelings and more often than not a fruitless debate ensued between those who agreed with the surgeon's point of view and those who stated that the main effect of surgery had been an acceleration of the disease. The arguments used were more of an emotional than a rational nature, which was understandable because in the first place little was known about what would have happened without surgery. Obviously, data on nonoperated patients were needed.

"As in the surgical decision making process, the angiographic findings were (and still are) of primary importance; somehow the clinical follow-up had to be related to

angiographic findings. Today, this may appear obvious but at the time we started the study, few people believed that the angiographic findings, which after all only reflect a momentary stage in the disease process, could have much prognostic value. The enthusiasm for surgical intervention, stimulated by improving results, made it difficult to obtain data on nonoperated patients. To start a prospective (randomized) study seemed ethically difficult to justify and could hardly be expected to be successful. Moreover, because of the chronic nature of coronary artery disease it would take many years before results would become available, and data were urgently needed. What then was more logical than to return to the source, namely, the Cleveland Clinic, where F. Mason Sones had established the foundation for surgery by developing coronary angiography to a safe and reliable diagnostic technique?

"The Cleveland Clinic was the only place where excellent angiographic data were available on a large number of patients who were examined during a period when selection for surgery still played a minor role. When we discussed this during one of my regular visits to the Cleveland Clinic, it appeared that a few colleagues from the clinic had been working on the subject, but mainly restricted it to selected groups of patients. Soon arrangements were made to begin the study. During the study, I had invaluable help from the cardiology staff of the Cleveland Clinic, particularly from William L. Proudfit, who later extended the follow-up and further improved the study.<sup>1,3</sup> Apart from the difficulty in tracing the patients (occasionally I felt more like a detective than a cardiologist) and establishing causes of death, there were no particular problems.

"The fact that this study has been cited so often can easily be explained by the uniqueness of the available data and their practical significance. This study has influenced the management of so many patients that it illustrates clearly that clinical investigators have a tremendous responsibility to present unconditionally reliable data. I am grateful for having had access to such excellent material."

1. Proudfit W L, Bruschke A V G & Sones F M, Jr. Natural history of obstructive coronary artery disease: ten-year study of 601 nonsurgical cases. *Progr. Cardiovasc. Dis.* 21:53-78, 1978.
2. .... Survival and ischemic events in nonoperated patients. (Bruschke A V G, van Herpen G & Vermeulen F E E, eds.) *Coronary artery disease today: diagnosis, surgery, and prognosis. Proceedings of an international symposium, 25-27 May 1981, Utrecht, The Netherlands.* Amsterdam: Excerpta Medica, 1982. p. 31-8.
3. .... Prognosis of stable angina pectoris. (Mason D T & Collins J J, eds.) *Myocardial revascularization.* New York: Yorke Medical Books, 1981. p. 1-20.