



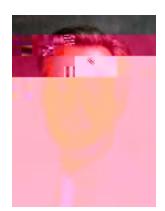
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RGA's Medical Underwriting Newsletter

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LETTER FROM THE EDITOR

Dear Readers:

This entire edition of *ReFlections* is devoted to the topic of underwriting coronary artery revascularization procedures. Its author, Dr. Oscar Cartaya, examines the challenges faced in underwriting complex medical cases in which information about coronary artery revascularization has been provided. He helps underwriters understand the clinical information that is available on attending phy onT1(v)2-9 Td[0.702 0 Td[D)-42(IT)2054

UNDERWRITING CORONARY ARTERY REVASCULARIZATION PROCEDURES

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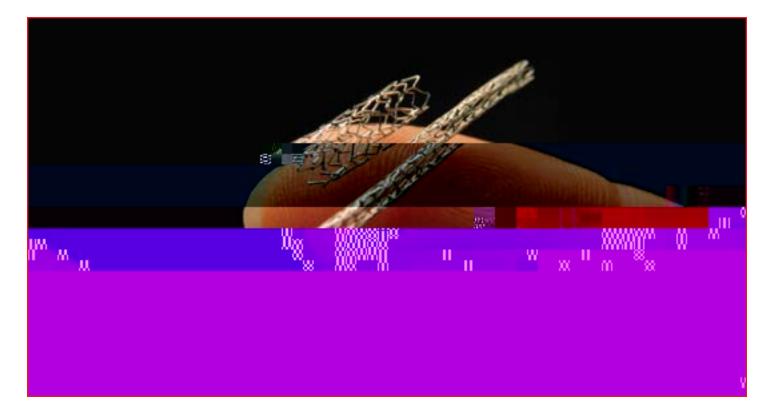
The treatment of Coronary Artery Disease (CAD) has improved signif cantly in the last few decades, resulting in a marked decrease in the mortality associated with this disorder. A signif cant portion of the improved success in the treatment of CAD has been due to the development of increasingly effective coronary artery revascularization procedures. These procedures are now bundled together under the name Percutaneous Coronary Intervention (PCI). They have achieved widespread acceptance and are used worldwide, with the increase in the use of revascularization treatments paralleling the decrease in CAD mortality.

In the U.S. alone more than half a million revascularization procedures are performed each year, and the use of these procedures is also increasing rapidly in the rest of the world. The initial limitations and problems associated with these procedures have been minimized by newer procedures and techniques. The standard percutaneous coronary angioplasty (PTCA) procedure is currently performed in less than 30% of all cases; while about 70% of the cases receive stents in the U.S., with the rest of the world following these trends closely.

Although these trends are generally positive, there are problems associated with the proliferation of the newer revascularization techniques. Many of these techniques have been developed for special situations, like total occlusion of a coronary artery, but are being used in a widespread fashion. Drug eluting stents elute a large variety of different therapeutic agents, but there is a lack of valid medical research and general information about outcomes produced by the substances being eluted. Particularly problematic is the lack of long-term mortality statistics, which are unavailable for many of these newer revascularization techniques.

This article does not in any way attempt to minimize the advances in the medical treatment of CAD. A number of new medical interventions have gained widespread usage over this period of time. Some of these have been preventative in nature, for example the widespread use of statins to lower the rate of progression of CAD; others have been targeted to the early identification of individuals with a greater risk of developing early CAD, like the coronary calcium scores produced by specialized scans; and yet others have been focused on better control and treatment of arrhythmias. All of these medical therapeutic approaches have produced positive outcomes and contributed to the overall reduction of CAD mortality. However these medical therapeutic approaches will not be discussed further in this article.

This article is an attempt to review specific aspects of the PCI procedures, particularly in relation to their effect



upon the overall reduction in mortality from CAD. It is not intended to be a comprehensive review of the PCI feld. I intend to focus on the difficulties associated with underwriting CAD cases treated with PCI. Underwriting is not an exact science that can be applied based upon strict rules; much of the underwriting process is determined by the availability of information at the time a decision is made. I intend to document the difficulties in underwriting these cases properly when the information available is less than complete, and provide valid data to evaluate the multiple complications found with PCI procedures.

To start this process, I will present an actual case without any identifying information about the applicant or company sending this case:

CASE #1

Male, 59 years of age, smoker, 5 feet 7 inches, 180 lbs., who drinks one beer daily, and is collecting disability for chronic back pain treated with hydrocodone. This man has a very significant family history of early CAD. His mother had died of a myocardial infarction (MI) before age 60; both of his brothers had received multiple coronary bypass grafts at an early age, one at age 48. He had no personal prior cardiac history until a hospitalization in 2004 for persistent chest pain.

Because of his family history, an extensive work-up was done which showed very little: He had an EKG with a Q wave in III, and sinus bradycardia. A treadmill exercise test (TM) was done which was stopped after 9 minutes of exercise and read as negative for ischemia by the treating physicians. A nuclear perfusion scan was done at that time which showed no redistribution but did show mild hypokinesis of the septum and an ejection fraction of 54%.

Summarizing this case up to this point, this man had essentially a signif cant family history of CAD with a 2004 history of persistent chest pain and a cardiac work-up that included a TM and a perfusion test which were not diagnostic, although they had some minor changes. Assuming this was all the information available for underwriting purposes, a low rating might have been a correct way to assess the risk involved in this case.

However, in this case the treating doctor was highly concerned about this man's family history, so a cardiac catheterization was done with full coronary angiography. The angiogram was highly abnormal; it documented a very long obstructing lesion of the right coronary artery, with a variable degree of obstruction between 75% and 90%. The other vessels were free of disease or had minor (not hemodynamically significant) amounts of plaque.

Therefore, the case's underwriting assessment changed with the cardiac catheterization results. This man not only

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has a significant family history of CAD, and symptoms

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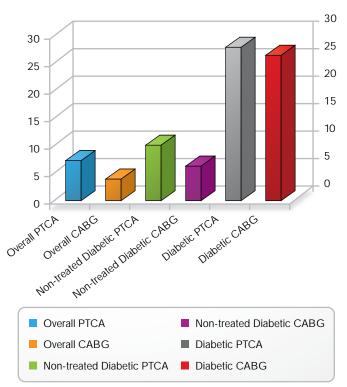


This study did not compare survival of medically treated patients vs. patients treated with PCI. With increased use worldwide of PCI as the treatment of choice for CAD, it has

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study included a subgroup of patients who were diabetics. This diabetic subgroup mortality outcome after treatment with PTCA or CABG was compared with a matched (not under diabetic treatment) subgroup's outcome with similar treatments. There was no comparison with medical therapy in this study subgroup. This diabetic study subgroup divided the patients into two groups: those with treated diabetes, and those receiving no treatment for diabetes. There was no distinction made (not enough patients) between single vessel and multivessel disease outcomes. The overall 10-year survival of these patients was 71.0% for those treated with PTCA, and 73.5% for those treated with CABG. Among the patients with no treatment for diabetes, the overall survival for those treated with PTCA and those treated with CABG was identical (77.0% and 77.3% respectively). However, the survival rate for patients with treated diabetes was much worse and favored treatment with CABG, 45.5% survival after PCI vs. 57.8% survival after CABG. These results clearly show a much worse outcome for diabetics with CAD vs. the general population with CAD, as well as a somewhat improved survival after CABG compared with the survival after treatment with PCI.

10-Year Mortality for Diabetics vs. Non-Diabetics and PCI vs. CABG



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decisions may be reached. The initial case presented in this article clearly demonstrates how limited information can affect the underwriting decision. It must be remembered that all population subgroups will not have the same type of favorable outcomes as those of the general population and this knowledge must be applied to the underwriting of these cases.

This second case demonstrates once more the difficulties presented by the evaluation of such cases for underwriting purposes.

How convincing is this history of CAD? And what severity of CAD is expected in this patient given her early age and the data supplied? If this was all the information available it would appear reasonable to classify her as having moderate to severe CAD, in my opinion.

A cardiac catheterization was done after the initial work-up. It showed no evidence of CAD, but the LAD (Left Anterior

CASE #2

Female, 58 years of age. Non-smoking. Not diabetic. No family history of early cardiac disease or sudden death. High cholesterol, under treatment with Lipitor, current value 262. History of a blood clot 10 years prior with no details.

This woman had a history of a prior MI at age 49. In the early summer of 2000 she presented with increasing chest pain, clinically diagnosed as angina, and had an EKG read by her doctor as showing a septal MI. She had a TM with a stress echo performed for diagnostic purposes. The TM was not diagnostic for ischemia after exercise of 10:30 min. The stress echo showed mild septal hypokinesia with exercise, and was read as positive for ischemia.

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