
Volume 4 - Issue 2 , 2010 - Cover Story: Cardiovascular Intervention

Results of the Syntax Trial: What it Means for Interventional Cardiologists

The introduction of sirolimus drug eluting stents (DES) in 2002 to Erasmus University Hospital was designed to improve outcomes in patients undergoing percutaneous coronary revascularisation (PCI). These stents markedly reduced the incidence of restenosis – a breakthrough indeed, since a long series of earlier trials, conducted in part at the Thoraxcenter, failed to reduce restenosis after balloon angioplasty or stenting with a bare metal coronary stent. It was a new weapon in our armamentarium, and it enabled us to vie with surgeons to take over the treatment of certain heart diseases – to increase patient safety, improve patient outcomes and make the revascularisation procedure more cost-effective by reducing hospital stays and post-operative care. Increasingly, a growing number of studies, such as CABRI, ARTS I and ARTS II reinforced this new tool, as they began to show the potential for stents and PCI, increasing reducing the gap between what they could achieve compared to surgery.

Origins of the SYNTAX Score

Even before the beginning of the SYNTAX trial, it was surprising that people were referring to three-vessel disease or left mainstem coronary disease without any reference to the severity of these conditions, when deciding whether PCI could or could not be used. As a bare minimum we needed a semiquantitative tool that could delineate the appropriateness of PCI in treating these patients. Secondly, the development of this scoring tool ensured that the interventional cardiologist and surgeon had to look carefully at the anatomy of the patient's coronary heart disease to describe all the anomalies of the individual system. We also incorporated existing frameworks into this new scoring system, such as amongst others the Leaman classification, and the AHA lesion classification (ACC/AHA). We also realised that it was imperative that the interventional cardiologist and cardiac surgeon came together to jointly evaluate the severity of the condition and decide whether PCI or surgery was the most appropriate treatment avenue.

Stenting or Surgery?

Clearly, to state that either stenting or surgery is superior to the other is too simplistic. There is no black and white answer. We can say that after two years of examining the data, that there is not too much of a gap between PCI and surgery in either set of patients, and thus it is primarily a question of which is the safer avenue for the individual patient. There are two types of analogy here – the SYNTAX Score which describes the anatomy, and EUROSCORE, which examines clinical factors such as co-morbidities. Using both these tools helps surgeons and interventional cardiologists decide whether surgery, PCI or to randomise the patient is the better option.

The SYNTAX Score can vary from 6 – 100 points that are divided into three groups. One group, the low score group, includes scores 22 and below; one is intermediate (22 – 32) and the last (33 and over) is the highest group. When one is trying to decide on treatment for left main-stem disease, the low and intermediate groups, are more safely treated by PCI. The highest scoring group will be safer with surgery. However, for three-vessel disease, only those patients that fall into the lowest category, 22 or below, should be treated via PCI. Finally, we have to remember that if there are too many comorbidities, PCI is probably safer. Higher SYNTAX scores, indicative of a more complex condition, are likely to represent a bigger therapeutic challenge and to have a potentially worse prognosis. We anticipate that a cut-off SYNTAX Score may determine the optimum treatment option.

A unique feature of the SYNTAX Score is that the 'raw' score determined before revascularisation will be 'weighed' once the results of the primary end point have been determined after one and five years. Thus, the weighed SYNTAX Score will reflect the actual outcome of the trial. We anticipate that the weighed SYNTAX Score will become a valuable tool in patient assessment and will compliment the EUROSCORE presently used to assess risk in surgical patients.

We are disseminating information for medical professionals about the syntax score via our website (www.syntaxscore.com), which recently registered 20,000 separate consultations coming from the U.S., Brazil and Japan. Since June this year, an online calculator can be downloaded.

Collaboration Key for Surgeons & Interventional Cardiologists

There has been some discussion about whether surgeons and interventional cardiologists can work together – competition for patients in some societies may make this unlikely, unfortunately for the patient. The level of collaboration between surgeons and interventional cardiologists depends on what continent and in which society you are referring to. In Europe, there is a more socialistic form of society. For example, whether I perform an intervention on one or on ten patients a day, I receive the same payment from the hospital where I work. This is the ideal system for this style of collaborative approach to blossom in, as the patient's safety and ultimate predicted outcome are the primary goal.

In a more competitive location such as in the U.S., which is dominated by private practice, for example if a surgeon gets a referral to treat a certain patient, he is not likely to refer this patient for PCI, even if using the SYNTAX score showed that he was within acceptable levels for this. Referring a 'customer' to another specialist would be career suicide. No patient = no payment!

Conclusions

The SYNTAX Trial is one of the most important trials ever undertaken in the field of coronary revascularisation and will provide a rational basis for choosing the optimum revascularisation strategy in patients with coronary disease for many years to come. The trial, which began in March 2005, will continue through April 2012. CABG remains the standard of care for patients with three-vessel or left main coronary artery disease, since the use of CABG, as compared with PCI, resulted in lower rates of the combined end point of major adverse cardiac or cerebrovascular events at one year.

Concerning the SYNTAX score, the first rule is that surgeons and interventional cardiologists should collaborate – perhaps even with non-interventional cardiologists who might assist in drawing the best treatment conclusion for the patient. If the case is too complicated for them, the

interventional cardiologist will pass the patient to the surgeon. If both say they can equally safely and efficiently treat the patient, then they can use the SYNTAX score to decide who should treat, the SYNTAX score shows similar performance, with the exception of a better ability to discriminate patients at risk of major adverse events.

Further Reading

www.syntaxtrial.com

www.syntaxscore.com

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