

# What is the “What”: reflections on language after PCR London Valves

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Dear colleagues,

Language and communication are at the core of what we do as doctors, and the value of words – the clarity of their full signification and meaning – evolves along with our knowledge and techniques. While some of the language we use is of classical origin, much of what we do as interventional cardiologists uses techniques only developed over the last few decades. It is only natural then that many of the keywords we use as specialists have come into existence along with our speciality. I have often been aware of this, and I noticed it again at the recent PCR London Valve where certain of these new terms were bandied about without a clear notion of what they precisely meant. “Structural heart disease” is one of these concepts, that while sounding correct, upon further reflection opens up a series of questions concerning its true and precise meaning. While this term was rightfully not included in the title of the course, where “valve” played the lead role, it was mentioned often; and if you look through the agenda of cardiology meetings today you will find that some are specifically dedicated to “structural heart disease”. You don’t have to look too far to even find experts in “structural heart disease”...but what, I ask, are they really experts in?

What does it really mean when we use these three words, “structural heart disease” together?

## Arbitrary naming: a short linguistic history of interventional cardiology

As I sought to understand this I looked back at my own history as an interventional cardiologist, revisiting the words that I discovered as I began – and progressed – in my career. The first term I came across describing a technique in what later became our speciality was “percutaneous transluminal angioplasty”; for Andreas Gruentzig it was PTCA, and you clearly see the Greek origins of his words: “plasty”, “angio” and others. He was attracted to the word “transluminal” because he had this concept that you treat the lesion – you don’t bypass the lesion. In this choice of words then we can see the whole history of PCI unfold, linked as it is to the question “Should we not bypass all the vulnerable plaque, between the

ostium on the lesion and the stented lesion?” In following the evolution of the terminology we choose we also confront the weakness of PCI, as we progressed through the lesion we left behind a lot of minefields, which were, of course the vulnerable plaque.

The second time in my career that I was confronted with a new name occurred in February 1986 when I heard Jacque Puel speak about “endoluminal prostheses”. Two months later, in a leaflet announcing a meeting in June, 1986 in Lausanne which I received from Ulrich Sigwart, I saw the term “stented angioplasty” for the first time. I had no idea what it meant and turned to my traditional – at the time – Webster dictionary where I was unable to find any definition for the word stent. Turning to a more specialised dictionary, I found this word “stent” described as a mould, something used for teeth, created by a dentist named “Stent”. Along the same historic lines linked to the people who create a technique, what is remarkable, is that today in The Netherlands you don’t say “I am going to do a PTCA on this patient...”, you say “I am going to Dotter this patient”, based of course on the pioneering work of Charles Theodore Dotter. Yet, we are the only country in the world that says “to Dotter”, we will never say that you should “Puel” or “Sigwart” a lesion, nor would I “Alfieri” a mitral valve. So a name – any name – can cover an activity in intervention, but not always in the same way or in different countries.

In 1987 Martin Leon introduced his new congress, and in the context of that meeting created a new word, “TCT” for transcatheter therapy. By using the word “transcatheter” he wanted to imply that the focus would be on every device that needed to be introduced through a catheter. Just imagine if he had called this “throughcatheter therapy”. At this period pulmonary balloon angioplasty already existed, clearly a transcatheter activity.

By that time there was “PCA” – the “t” of transluminal had already been dropped from “PTCA” and soon we were ready for “PCI” – filling in the missing terminology link between balloon angioplasty vs. intervention. Intervention had to cover cutting balloons, directional atherectomy, rotational atherectomy – many other interventions which were not related to the balloon itself – and of

course we cannot forget lasers – so the new concept, the new term was born of PCI, of “percutaneous intervention”. It also covered – at that time – some of what we call “structural heart disease”. Now PCI is more for the coronary, because nobody knows for sure if the “C” was originally there for coronary, I believe it is for coronary, but it is also like the term “PCR”: we all think it stands for the “Percutaneous Course on Revascularisation”, but for those of us who are historically associated with this course, we know that it originally stood for the “Paris Course on Revascularisation”.

## Returning to the “structural heart”

So these are the sometimes arbitrary origins of names and their usage within our speciality, the next step is “structural heart disease”, and it is far more complex to trace the origins of this terminology. To do this we can turn to an editorial by Richard “Dick” Conti written over 20 years ago when he was asked, “Does the term ‘structural heart disease’ have any clinical meaning?”<sup>1</sup>.

He immediately objected to the “implied generic use of the term ‘structural heart disease’”, and went on to say that, “There is no such thing as generic structural heart disease. One would have to be living on another planet to not understand that. Why then is this term used so commonly?” For Dick Conti, as for myself, this term is loosely used to include all cardiac and cardiovascular problems where a structural change can be witnessed. The lack of precision can be seen in the less than exhaustive list that Dick Conti included in his editorial concerning what might be considered “structural heart disease” which include,

“...hypertensive cardiac disease with left ventricular hypertrophy; hypertrophic cardiomyopathy; dilated cardiomyopathy; rheumatic heart disease and all of its different valvular abnormalities including mitral stenosis, mitral regurgitation, aortic stenosis or aortic insufficiency; congenital heart diseases both cyanotic and acyanotic; mitral valve prolapse; Marfan’s disease; constrictive pericarditis; acute pericarditis; myocarditis; restrictive cardiomyopathy; and coronary heart disease. In the latter category, chronic stable angina, unstable angina, and patients with an old myocardial infarction that has been stable ...”

He concludes by saying that for this term, if it is unqualified by the condition it specifically refers to, “if it stands alone, the phrase ‘structural heart disease’ is meaningless.”

In other words, the term by itself does not mean anything. It would be correct to call “structural heart disease” everything that is related to the structures of the heart, and in doing so we have not even begun speaking about patent foramen ovale (PFO) closure and atrial septal defect (ASD) or left appendage, etc. So it is amazing that if I ask an interventional cardiologist what they mean by “structural heart disease”, they will speak about – at most – ASD, ventricular septal defects (VSD), mitral, aortic, pulmonary, left appendage...but the whole myocardium will be potentially forgotten.

Thus, what we have here is a terminology that is very smart on one hand because it covers every change in any structure in the heart; however, on the other hand it is very a-specific. And when we consider that coronary artery disease, which is also a change in structure, is included within this concept as well, it demonstrates again that “structural heart disease” is a term which – in the future – will not be very useful.

## Learning the lesson of our language

I am recounting this story as a cautionary tale, as a warning to a younger generation that they too might be confronted with terminology that is similar to what we have been saying about “structural heart disease”.

I am speaking specifically about nanotechnology, which is currently making serious progress and is seen today to have an impact on everything in our body. I am sure that at some point – as a matter of fact it has already been created – there will be “nanocardiology”. And if we want nanocardiology to be useful we should begin today and be sure that we remain specific about what that term could truly mean and encompass because if we do not, and allow ourselves to remain vague, we will create the same tower of babel that we have seen with the phrase “structural heart disease”.

We must always be careful that while a term may sound pretty, it might have no real meaning to us as practitioners, and thus, in a very practical sense it will be useless.

## Reference

1. Conti CR, Editor’s Note: What Is Structural Heart Disease? *Clin. Cardiol.* 2000;23:397-8.