AN INTERVIEW WITH...

Christoph A. Nienaber, MD, PhD

Prof. Nienaber discusses current and emerging methods for aortic dissection care, as well as the recent work of the International Registry of Aortic Dissection (IRAD) organization.

You have a unique perspective having practiced in both Germany and the United Kingdom (UK). Are there any differences that stand out to you in any aspect of daily practice?

Other than a lot of similarities in the health systems, as compared to the United States, there are still some differences between Germany and the UK. It is part of the UK culture to discuss every case in depth, and the process of coming to a conclusion is more fluid and usually takes a bit more time. However, creative solutions are always welcome, even with a minority vote. Thus, the decision-making process in the UK culture may be a bit more cumbersome, but more individualized to the patient compared to the efficiency-driven German system with diagnosis-related groups and numbers as incentives.

What is the biggest hurdle in setting up a system of regional centers of care for aortic diseases/dissections?

Regional care systems are not very popular yet, but they are emerging and unavoidable. This concept will be embraced by or imposed on the National Health Service, as the UK's exit from the European Union will eventually take a financial toll. There will be less funding for health care in the coming years, not even accounting for the demographic changes, and the UK has to adapt to less/no support from the European Union. This process will wear and tear on quality and devotion to care, and innovation will become a problem. Regionalization and managed care are being considered instruments to economize health care and will be imposed on the system. For aortic dissection and aortic programs, it could mean contraction and concentration in centers of excellence. On the other hand, there are only a few centers that offer a complete aortic service from the valve to the bifurcation, as we do.

You have previously discussed the potential utility of genetic profiling to predict and possibly prevent aortic dissection. How would this be implemented, and how would you begin targeting possible candidates for profiling/treatment?

I see a lot of potential in genetic profiling to predict and, hopefully, prevent aortic dissection and other catastrophes including rupture. We are not only talking about Marfan syndrome or other well-defined connective tissue diseases and similar conditions, but rather about families with a history of unexpected sudden death or generations of vascular problems in the family background with or without any phenotypic abnormalities. Those individuals are new and interesting targets to assess for care, and there is a lot of information to discover in this area. Most importantly, careful history taking, an almost-forgotten art in medicine, celebrates an important revival.

As manufacturers work on dissection-specific devices for treating uncomplicated type B dissection, what qualities would the ideal device incorporate to treat this disease?

I will not say that endovascular techniques are the solution to all aortic problems, but we do need dissection-specific devices that are different from those in our current armamentarium. In a dissection scenario, especially in the absence of an immediate acutely life-threatening condition, any endovascular procedure should be safe and efficacious. Thus, we need stent grafts and stents with less radial force at their distal end, the option to marry them with other devices and open stents, and the potential for side branch access (in view of later degenerative changes). We are still far from this technologic stage, but industry is beginning to understand our demands.

What factors define patients at risk of rupture but who have what you would deem "subcritical" aortic dimensions? Once identified, what can or should be done to meet their needs?

The so-called critical diameter of a dissected vessel has recently been reduced from 5.5 cm to 4.4 cm, based on recent data from the group at the Massachusetts General Hospital in Boston. Only subacute and chronic cases of type B dissection with a total diameter smaller than 4.4 cm could be considered subcritical and should be observed. If such a case shows evidence of partial false lumen thrombosis or enhanced fluorodeoxyglucose update indicative

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of inflammation on positron emission tomography/CT scans, active preemptive treatment with a stent graft would be sensible (regardless of clinical stability). We are now in an era of individually characterizing any given patient with aortic dissection and tailoring personal treatment.

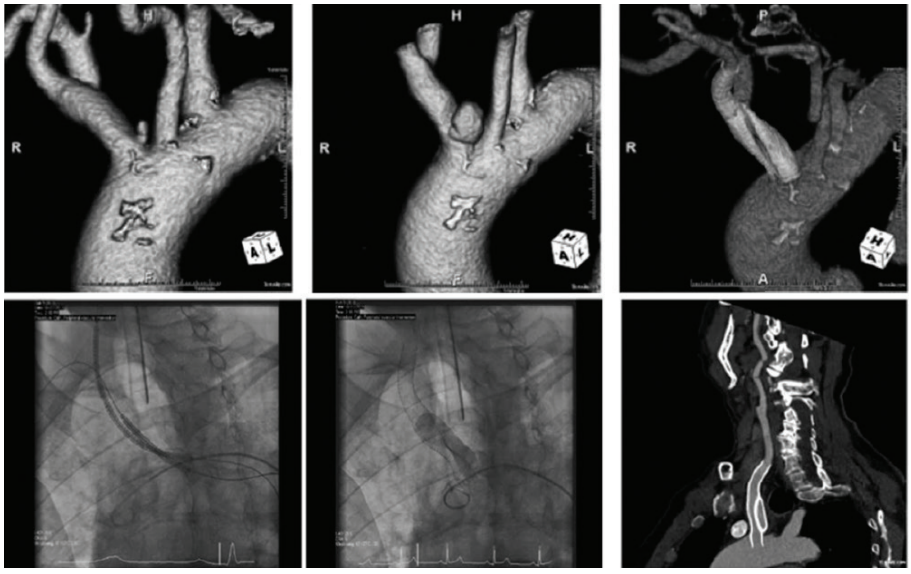

Figure 1. Pictorial display of "neobranching" showing an extra-aortic entry to an aortic dissection/intramural hematoma, which was sealed by neobranches (ie, hugging Viabahn stent grafts [Gore & Associates] in the innominate artery).

Can you briefly describe the so-called *neobranching* technique? In which cases is it best used, and is there any clinical evidence on its use to date?

"Neobranching" in the context of aortic dissection is a new concept applied in the case of aortic dissection originating not from the aorta but with an entry tear in any side branch of the aorta.[1] Following the idea of closing the entry tear of a dissection, the side branch becomes the target of treatment (eg, the side branch will have to be stent grafted) and thereby becomes a neobranch, whereas the aorta itself stays entirely untouched but still remodels over time because the entry tear has been closed (Figure 1).

What were the most important findings from the recent study of recurrent aortic dissection based on the International Registry of Aortic Dissection (IRAD) database? Do these findings provide any clues on ways to improve upon initial treatments?

Recurrent aortic dissection has been observed despite successful treatment of the initial dissection. We proved that recurrent dissection (irrespective of its location) is frequently found in patients with overt or occult connective tissue disease, which is actually not surprising. However, the finding also implies that genetic profiling and proper identification of "nonsyndromic" cases of dissection is of paramount importance.

What is the current focus of the IRAD organization's research efforts? Will there be any new reports in the near future?

The IRAD organization recently celebrated its 20th anniversary, which is almost a miracle that we had not expected at its inception in 1996. An idea born in a parking lot in New Orleans at the American Heart Association scientific sessions (between Dr. Eric Isselbacher and myself) has sustained over 2 decades and produced more than 80 peer-reviewed articles, some of which were important and pace-setting, and it is still growing.

Our new interest within IRAD is the creation of new IRAD branches focusing on genetic profiling (IRAD-GEN), imaging concepts (IRAD-IMAGE), and interventional treatment (IRAD-Intervention) that require specific sets of data.

I am hopeful and almost certain that there will be new reports from IRAD subgroups to open the eyes of the medical community, which may not necessarily be familiar with the low-incidence/high-impact condition of aortic dissection. ■

1. Vandormael IL, Salmasi MY, Yeh JS, Nienaber CA. Endovascular "neobranching" to manage acute aortic syndrome [published online September 19, 2016]. Catheter Cardiovasc Interv.

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