

Do we need more or better electrophysiology centres?

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Received 8 July 2013; accepted after revision 12 July 2013; online publish-ahead-of-print 19 August 2013

This editorial refers to ‘A survey of German centres performing invasive electrophysiology: structure, procedures, and training positions’ by H.-R. Neuberger et al., on page 1741.

Invasive electrophysiology (EP) and device implantation have markedly increased in complexity and in numbers. The possibility to ablate almost all arrhythmias and in particular atrial fibrillation (AF) has been accompanied by a growing number of EP centres, who have started to tackle all complex atrial or ventricular arrhythmias.

In this issue of the *Journal*, Neuberger et al.¹ make an interesting survey of the actual situation in Germany. Their conclusions are the following: first, the results indicate an increasing super-specialization of arrhythmology when, in the authors' opinion the link with or the dependence on general or interventional cardiology can be questioned. Secondly, AF has become the first indication for arrhythmia ablation with a continuous increase in number and a growing demand for the procedure, which has also been recently observed in other surveys.² Another question arises regarding the adequacy of the training potential of the present structures as well as their ability to comply with the proposed criteria for training centres.³

For us, it is surprising to observe, how the situation in our country is similar to observations in this survey, suggesting it is a reflection of the general situation in Europe. Looking at the spontaneous expansion of EP activity, the discussion has to be oriented towards complying with the obvious clinical need, and the necessity for a better regulated competency recognition and rational distribution of accredited high level and high-volume centres. On the other hand, excessive control by regulatory bodies may limit access of patients to state-of-the-art therapy. We would like to share our thoughts on this topic, working in a country with a well-organized insurance system.⁴

Must electrophysiology be part of a cardiology department?

Taking into account the complexity and the high level of competency and proficiency needed for practicing advanced EP studies, left atrial and ventricular ablation, the use of implantable cardioverter-defibrillators, and cardiac resynchronization therapy, it appears nowadays difficult to conceive of this kind of activity outside a strong, adequately staffed cardiovascular department. Performing these procedures necessitates a well-organized, specific, and efficient arrhythmology equipment and environment in the context of a global cardiology structure (in our opinion, even in close collaboration with surgery) as the variety of clinically relevant arrhythmias and associated conditions and therapies is evolving very fast (transcatheter aortic valve implantation, MitraClip, left atrial appendage closure devices, the possibility of hybrid procedures, the advantage of surgery over catheter ablation in particular situations, etc.).⁵ Complications are rare in excellent conditions and with experienced teams, but they may still occur, and adequate interventional and/or surgical back-up remains a guarantee for safe interventions with a very low morbidity and mortality near zero.

Surprisingly, according to the authors,¹ 77% of the EP consultants also performed coronary interventions. While this should be part of the training, and might be an advantage when coping with particular problems, this may also indicate that EP departments are not always completely independent.

How should the electrophysiology department be staffed?

Another apparently minor but interesting question, which deserves attention, concerns the usefulness or the necessity of the presence of more than one electrophysiologist for more complex procedures

such as pulmonary vein isolation or more extensive AF ablation, and ablation of ventricular arrhythmias. Neuberger *et al.*¹ have found that 'only' 58% of the centres reported that at least two physicians were present during the majority of the ablation procedures, which is in contrast to what has been proposed in the requirements for training centres in Germany.^{1,3} However, no mention has been made about this in the international recommendations.^{6,7} This low percentage could be interpreted as lack of a sufficient number of EP specialists or even trainees or fellows available for assisting the primary operator. In high-volume centres where experienced technicians are part of the EP team and where the staff members have by definition a good experience in ablation, these procedures can be performed without being systematically assisted by a second EP specialist, whereas it is precisely in these centres that training should be given, and a junior EP doctor or a fellow should be available. In this way, these centres can remain excellent.⁸ On the other hand, centres with lower volume procedures or non-academic or non-teaching institutions are often less staffed and the presence of more than one EP is less common. Their disadvantage is obviously the absence of adequate control or risk of 'stagnation' by performing only routine procedures and overlooking progress in the more and more complex field of ablation. In this era of restrictions, however, budgetary constraints could make it a kind of luxury to perform ablations with the presence of two or more electrophysiologists, endangering the quality of EP activity.

How to cope with increasing electrophysiology activity and the need for atrial fibrillation ablations?

The number of ablations is increasing worldwide. This correlates with a growing number of EP centres. Germany, with its 82 million inhabitants has ~3.3 centres per million.¹ Among the total number of 33 420 ablations, performed by 277 centres, 35% were done for AF. When we compare these figures with those, for instance, in Belgium, we observe almost the same percentages with a proportion of 3.4 ablation centres per million people, with approximately one-third of ablations performed for AF.^{9,10} This is apparently becoming a general trend. It is to be noted that in interventional cardiology it became accepted and explicitly stated in the latest guidelines that smaller does not necessarily mean worse.¹¹

There is clear evidence that the techniques available nowadays offer an unsurpassed improvement in the quality of life for many patients, including those with persistent AF.^{6,7,12} Developments in catheter technology render procedures more easy and can help streamline the growing number of patients.¹³ Budgetary restrictions limiting the number of physicians and decreasing the reimbursement for these interventions are counterproductive, as ablation is continuously improving. On the other hand, we as professionals, are obliged to provide more robust data and to prove that our interventions are cost-effective. Providing data to the national registries such as the German survey, publishing its outcome is one way of doing this, but it cannot replace information from randomized trials which still are scarce in this area.^{1,9}

How to train the heart rhythm specialists?

According to Neuberger *et al.*¹ and the European Heart Rhythm Association (EHRA) recommendations,³ a total number of 200 ablations per year are necessary to comply with the requirements for a training centre. A minimum of 50 AF ablations is also required by the German Society, but not by the EHRA.^{3,6} The presence of a cardiac surgical unit is required by the EHRA, as it is in the Netherlands. It is striking to see that all the recommendations are only fulfilled by 25% of the German centres. In this respect, it is important to underscore that these requirements are not legally binding. In Belgium, for instance, with good criteria for an EP centre as such, neither official criteria nor a specified training programme or legal recognition for a trained EP specialist exist, whereas the EHRA has already published criteria for training in 2009.^{14,15}

Given the increasing number of ablation procedures and complex AF therapies, there seems to be a growing need for a better established and a better organized curriculum for our future arrhythmologists as recommended by different scientific organizations.^{14,15} This appears certainly true in the context of an accreditation of the EP centres and more specifically EP training centres. As long as these requirements are not taken into account by the legal authorities, restrictions of EP activity cannot be justified.

Conclusions

Can we afford to stop or slow the evolution towards better available ablation facilities by limiting the number of centres, by requesting higher volumes, or by imposing some regulations, e.g. because of budgetary restrictions? The example of interventional cardiology clearly demonstrates that the restrictions which were initially imposed seem nowadays largely obsolete.¹¹ In contrast, however, better regulated EP training and accreditation is mandatory. It took many years before the real indications of angioplasty and stenting became evident, and now there is a clear slowing of the amount of procedures.² Nevertheless, the number of patients with AF is increasing and our understanding is only beginning. We feel that not the numbers count—apart from the logical minimum which is required for quality—but the presence of an adequate staff of well trained electrophysiologists, with access to all the available technology, supported by a complete team of cardiology and cardiovascular surgery. After a training as outlined by the EHRA,¹⁴ it is very likely that such groups, even with the numbers as now observed in Belgium, Germany, and in many other countries, will provide state-of-the-art procedures, and will finally help decrease the burden on the budget imposed by the epidemic of AF.

Conflict of interest: none declared.

L.D.R., former president of the Belgian Working Group on Cardiac Pacing and Electrophysiology (BWGCPE), P.G., secretary of the Belgian Heart Rhythm Association (BeHRA), and L.J., former president of the Belgian Society of Cardiology (BSC) expressed in this paper their personal opinion.

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EP CASE EXPRESS

doi:10.1093/europace/eut074

Online publish-ahead-of-print 21 April 2013

Circumventing a left ventricular assist device and implantable cardioverter defibrillator interaction: an alternative method of shielding

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Our patient is a 50-year-old African-American man with non-ischaemic cardiomyopathy. A St Jude Medical (SJM) Atlas V-193 was placed at implantable cardioverter defibrillator (ICD) generator change out in 2006, and in 2010, a Thoratec HeartMate II left ventricular assist device (LVAD) for end-stage heart failure. In the post-operative (post-LVAD) period he developed incessant, slow ventricular tachycardia.

Initially, communication between the SJM programmer and ICD could not be established. The operational frequency emitted by the HeartMate II (7.2 kHz) is very similar to that employed during the 'handshake' between the V-193 and the programmer (8 kHz). Various shielding methods have been proposed. We modified a reported method by adding a surgical tray over the LVAD (see the figure). Early generator exchange is an option but poses significant risks. Older SJM ICD families (Photon, Epic, and Atlas) operate at 8 kHz. Current SJM ICDs still use 8 kHz for high voltage impedance measurements. Similar problems have been reported with Sorin Ovatio DR and Alto 2 ICDs.

In patients with the HeartMate II and certain ICDs, we recommend using a large surgical steel tray to cover the LVAD and covering the programmer cord with a steel conduit and the programmer head with an aluminum electrical outlet box.

The full-length version of this report can be viewed at: <http://www.escardio.org/communities/EHRA/publications/ep-case-reports/Documents/cardioverter-defibrillator.pdf>

