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What Stops Us from Performing More Pacemaker Electrodes Extractions?

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ABSTRACT

Lead extraction is a challenging procedure and needs to be performed by more centers throughout Brazil. The reasons for the underuse of the procedure and the necessary actions needed to be taken by the medical community are discussed in the text.

KEYWORDS: Endocarditis; Electrodes; Cardiac arrhythmias

At the beginning of the last decade, the number of implantable cardiac devices (ICD) per million inhabitants was estimated to be lower in Brazil compared to some countries in South America and even Puerto Rico.

According to data from the Department of Artificial Cardiac Stimulation (DECA), 50,000 new ICD implants are performed in Brazil. The numbers show a problem with access to arrhythmia treatment when we analyze artificial cardiac stimulation, which is more significant in the public system. We are implanting fewer ICDs than we should; however, we do not escape complications, and this makes me think about the problem I intend to address in this text: what prevents us from performing more pacemaker electrode extractions?

- Answering this question is necessary for a few reasons:
- From the care point of view, given that complications, notably infectious ones (around 1% of implants), will come and will have to be faced, and there is abundant literature that shows the clear superiority of extraction compared to any other method;
- Data from the Department of Informatics of the Unified Health System (*Sistema Único de Saúde/Datasus*)[1] shows that the value of the *professional service* item is BRL 296.43 and that of the *total hospital* item is BRL 568.20. Such numbers demonstrate the economic and financial unfeasibility of the procedure;
- Training and designing robust pacemaker electrode extraction programs at implant centers is critical to achieving consistent results, even at low-volume centers;
- Creating a national electrode extraction registry aims to provide transparency to national numbers.

Emphasis on procedural safety is essential. The learning curve is steep and presents challenges. There is no prediction of how complex an extraction will be; there is a risk prediction. I have removed too many electrodes to know that a 30-year-old electrode is only sometimes more difficult or dangerous to remove when compared to an eight-year-old electrode.

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The risk scores and even the morbidity and mortality predictive factors published (time of electrode implantation, number of electrodes, gender, age, etc.) in large trials and recommendations from societies guide us regarding the risk of the procedure and are essential statistical tools for our practice, but fail to anticipate complications.

One of the most prominent risk markers is the volume of cases performed per year at each center. The ELECTRa[2] study categorically brings the following statement: "The extraction of electrodes had better results (higher success rate and lower rate of complications and mortality) in centers with higher volume (at least 30 extractions/year) when compared to centers with lower volume". How many high-volume centers do we have in Brazil?

Considering that approximately 55% of indications for electrode removal are due to infections[3] (local or systemic) and that the entire treatment (implantation, diagnosis, antibiotics, hospitalization and surgery) in this situation is costly from the financial point of view and also from the time of hospitalization, the argument that the material cost (sheaths and guides) is high does not hold, given the increased effectiveness of the procedure.

It is not intended here to exhaust the subject under any analysis aspect. However, my clinical practice has been drastically changed in treating infections related to ICD, as well as in treating venous obstructions in patients who need more electrodes and in the non-abandonment of useless electrodes in circulation.

Here I propose a debate to be held by our community, trying to sensitize patients, paying sources, clinical cardiologists, hospitals and public authorities. Medical fee amounts should be proportionate to the risks assumed. Regulation, financial cost control instruments, and access to treatments should not be barriers to performing procedures but a means of practicing the medicine of excellence, whether it is highly complex or not.

The treatment of genetic diseases, heart failure, bradyarrhythmias and other clinical conditions in our daily practice has an arsenal that ranges from pills to organ transplants, including invasive tests and device implants. The Brazilian epidemiological profile requires more significant investment in access to treatment for chronic cardiovascular diseases. The (necessary) increase in the number of implants will result in the (inevitable) increase in procedures to treat complications and allow the performance of more complex cases, which is the case with ICD electrode extractions.

CONFLICT OF INTEREST

Proctor to perform extractions and continued medical education of the two existing brands in our market

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DATA AVAILABILITY STATEMENT

Data sharing is not applicable.

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