Antiarrhythmic Therapy, 20 Years After

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Any therapy in medicine fits one of the following categories: tablets, interventional, surgical and various. In the last category we put now lifestyle and diet, physiotherapy and rehabilitation, and alternative medicine procedures.

As a professor of cardiology, 20 years ago, I was teaching students on therapy of rhythm disturbances. In acute cases we used electric shock cardioversion. For the rest of arrhythmias – and there were a lot, textbooks of over 1000 pages described them – the main therapy was with drugs. I was lecturing with attention the pros and the cons of many drugs in the well-known classification of Vaughan Williams. This took between 10 and 20% of all the teaching hours dedicated to cardiology.

In the last 20 years the teaching lectures on arrhythmology changed dramatically. First of all I realized that no antiarrhythmic drug cures any rhythm disturbance. Practically, only 2 drugs remained with a significant antiarrhythmic use: amiodarone and beta blockers. All other which I once described in detail during my lectures still exist, but with very, very limited clinical use. Their side effects are today more relevant then the benefits.

Interventional arrhythmology is now the king of diagnosis and, most of all, the king of efficient therapy.

The main fields of today arrhythmology are:
A. Basic non-invasive field, diagnostic only: ECGs, Signal Averaged ECG, non-invasive mapping, Holter and some others.
B. Main invasive field, including electrophysiology and devices (1,2), both with main therapeutic procedures:
   1. electrophysiology:
      a. electrophysiological studies (diagnostic);
      b. ablation:
         • simple arrhythmias, such as:
            ▪ atrio-ventricular nodal reentry tachycardia;

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- AV reciprocating tachycardia – visible or concealed – including Wolff-Parkinson-White (WPW) syndrome;
- atrial flutter.
- complex arrhythmias:
  - atrial fibrillation;
  - atrial tachycardia (focal, reentrant);
  - ventricular tachycardia.

2. devices:
   a. simple devices: pacemakers and implantable loop recorders;
   b. complex devices: defibrillators and resynchronization devices;
   c. lead (and device) extractions (a different kind of game).

Most of these arrhythmology procedures are finally dedicated to cure the rhythm disturbances. Sometimes rhythm disturbances do not come back any more. Sometimes they reappear, but much more rarely and without the same aggressivity. There are arrhythmias which are really cured: atrio-ventricular nodal reentry, atrio-ventricular reciprocating tachycardia, atrial flutter. Other, like atrial fibrillation, atrial tachycardia and ventricular tachycardia are not always cured. In these cases there may be failures. And for atrio-ventricular blocks – there is no “cure”, but there is efficient therapy.

What is most important, in many cases the short and long term mortality may be improved. This is totally applicable in the field of device therapy. Intracardiac defibrillators and cardiac resynchronization therapy, when properly indicated, are proved to decrease mortality. For arrhythmias of any kind the effect on mortality is more complicate to evaluate. A clear positive example is for the high-risk patients with WPW syndrome, such as those with pre-excited atrial fibrillation, where the risk of sudden cardiac death reaches 1%/year; in these patients WPW ablation provides a complete cure. For other arrhythmias, ablation – when successful - provides symptomatic relief and decreases recurrent hospitalizations. But to date there is not demonstrated the clear decrease of mortality for common atrial fibrillation or for ventricular tachycardia.

With what costs? The cost-efficiency is in very good limits for any life saved or for any cost of the avoided therapy of an acute episode which does not appear.

The struggle now is to make all the procedures closer to the total cure of the rhythm disturbance for which they are dedicated.

In the most famous writings on the theme “… 20 years after” most of the characters are older, sometimes wiser, sometimes in a better social position, sometimes... old only. Twenty years later, arrhythmology is younger and stronger than ever.

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REFERENCES