Preface

Complex Arrhythmias: A Systematic Approach Toward a “Precision Electrocardiology” Horizon

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Editors

“Interpreting Complex Arrhythmias” is the third in a series of issues dealing with electrocardiographic analysis published in *Cardiac Electrophysiology Clinics*.

Our thanks to Drs Ranjan K. Thakur and Andrea Natale for their continuous support of our long-lasting passion for the surface electrocardiogram (ECG) behind the compilation of these three issues.

We also need to thank Professor Luigi Padeletti, friend, inspirer, and leader in this endeavour, who, from the beginning of this effort, reminded us that the interpretation of an electrocardiographic tracing is not just a mere diagnostic tool to guide clinical choices but also an instrument to advance our knowledge of the normal and pathologic cardiac electrical properties.

Part I of this series, “Normal Electrophysiology, Substrates, and the Electrocardiographic Diagnosis of Cardiac Arrhythmias,” explored the links between basic anatomic and electrophysiologic concepts and the electrocardiographic manifestations of arrhythmias. The second issue, “Bradycardias, Complex Tachycardias, and Clinical Arrhythmias: The Role of Electrocardiography,”

dealt with brady-tachyarrhythmias and their clinical context, while this third issue, “Interpreting Complex Arrhythmias,” approaches arrhythmias of higher complexity either because of problematic ECG interpretation or because of intricate electrophysiologic mechanisms. Following the approach of the previous issues, ECG tracings are logically analyzed to obtain fundamental clinical information guiding patient management. Within this issue, the article by Bagliani and colleagues stresses the need for a correct interpretation analysis; articles by Padeletti and colleagues and De Ponti and colleagues compare the simple and complex acquisition of the electrocardiographic recording; and articles by Chen and colleagues and Leonelli and colleagues describe the overall method of arrhythmia’s analysis. Having provided the interpretative tools, the reader is introduced to a deeper analysis of complex arrhythmias: bradycardias in the article by Leonelli and colleagues, narrow complex tachycardias in the article by De Ponti and colleagues, and wide complex tachycardias in the article by Tordini and colleagues.

In the article by Bagliani and colleagues, subtle variations of ECG morphology are discussed; these cannot be overlooked, representing the key to the interpretation of the arrhythmia's mechanism. Articles by Jebberi and colleagues, Locati and colleagues, Sciarra and colleagues, and Pozzolini and colleagues deal with four complex arrhythmologic problems: polymorphic wide QRS complex tachycardias; inherited and acquired abnormalities of ventricular repolarization; arrhythmias in patients with implantable devices; and complex arrhythmias due to reversible causes.

The article by Leonelli and colleagues describes representative cases of hidden complexity in routine adult and pediatric arrhythmia interpretation and introduces the concept of "precision electrocardiology." This defines a deeper knowledge of the arrhythmic electrophysiologic mechanisms obtained by correlating electrocardiographic tracing with data obtained with 3D catheter mapping, genetic analysis, or diverse cardiac imaging. The end result should be a complete understanding of each component of an ECG recording.

We hope that this issue of *Cardiac Electrophysiology Clinics*, a compendium of years of study and clinical observations, becomes a useful instrument in the hands of students, clinical cardiologists, electrophysiologists, and scientists.

For ourselves, we wish to continue in the path marked by our teachers.

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