



The Role of Electrocardiography (ECG) in Interventional Cardiology: A Comprehensive Analysis

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INTRODUCTION

Electrocardiography, commonly known as ECG or EKG, is a vital diagnostic tool in cardiology. This non-invasive procedure records the electrical activity of the heart over a period of time using electrodes placed on the skin. By capturing the heart's rhythm and detecting abnormalities, such as irregular heartbeats or damage to the heart muscle, ECG aids in diagnosing various cardiac conditions. It provides essential insights into heart health, guiding medical professionals in making accurate treatment decisions. With its simplicity, speed, and effectiveness, ECG remains an indispensable technique in the assessment and management of cardiovascular diseases, contributing significantly to patient care worldwide. Interventional cardiology has revolutionized the field of cardiovascular medicine, offering advanced techniques to diagnose and treat various cardiac conditions. Among the myriad tools at the disposal of interventional cardiologists, Electrocardiography (ECG) remains a cornerstone for patient assessment, procedural planning, and post-procedural monitoring. This article aims to explore the pivotal role of ECG in interventional cardiology, delving into its applications, significance, and evolving technologies. ECG is a non-invasive diagnostic tool that records the electrical activity of the heart over time. Twelve-lead ECG provides a comprehensive view of the heart's electrical activity, aiding in the identification of various cardiac abnormalities.

DESCRIPTION

Understanding the correlation between ECG findings and cardiac anatomy is crucial for interventional cardiologists. Each lead in the ECG corresponds to a specific area of the heart, allowing for localization of ischemic regions or abnormalities. ECG plays a pivotal role in diagnosing and localizing myocardial ischemia and infarction. ST-segment elevation and depression patterns are indicative of acute myocardial infarction and

help guide urgent interventions. Identification of arrhythmias through ECG aids in risk stratification and guides the choice of interventional procedures. Atrial fibrillation, atrial flutter, and ventricular tachycardia present challenges that require ECG-guided therapeutic strategies. ECG assists in the selection of appropriate coronary arteries for angiography. Localization of lesions and determination of optimal projection angles are crucial for successful procedures. ECG is integral in identifying the origin and nature of arrhythmias before performing EPS. Mapping abnormal electrical pathways helps plan ablation procedures effectively. Continuous ECG monitoring during PCI ensures precise identification of stenotic lesions. ECG guidance assists in optimal stent placement and the assessment of procedural success. In catheter ablation procedures, real-time ECG monitoring aids in mapping and targeting specific areas responsible for arrhythmias. ECG feedback helps assess the effectiveness of the intervention immediately. Continuous ECG monitoring post-intervention helps identify potential ischemic complications, such as no-reflow or slow-flow phenomenon. Timely recognition allows for prompt intervention and management. ECG is crucial for detecting post-procedural arrhythmias, including bradyarrhythmias or tachyarrhythmias. Immediate intervention may be required to address these complications [1-4].

CONCLUSION

Electrocardiography remains an indispensable tool in the realm of interventional cardiology, serving as a guide for diagnosis, procedural planning, and post-interventional monitoring. As technology continues to evolve, the integration of ECG with cutting-edge imaging modalities promises to further enhance the precision and efficacy of interventional procedures. The intricate dance between ECG findings and interventional strategies continues to shape the landscape of cardiovascular medicine, ultimately improving patient outcomes and

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advancing the field as a whole.

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CONFLICT OF INTEREST

The author's declared that they have no conflict of interest.

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