From bedside monitors to mobile technology: a modern approach to cardiac patient monitoring

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Cardiovascular diseases are the leading cause of mortality worldwide, and their timely recognition and monitoring are crucial for reducing complications and improving patients' quality of life. Traditional monitoring of cardiac patients relies on hospital telemetry and periodic examinations. This type of monitoring is feasible only for hospitalized patients and ceases after discharge.

However, the advancement of digital technologies has opened new possibilities. Modern tools such as smartwatches are now capable of tracking heart rate, rhythm, ECG recordings, oxygen saturation, and activity levels. Validation studies demonstrate high accuracy in detecting atrial fibrillation, comparable to traditional methods[1,2]. The introduction of artificial intelligence further enhances the efficiency of algorithms for arrhythmia detection[2]. Mobile applications constitute a significant part of the digital ecosystem in cardiology care. Some connect with smart devices to automatically collect vital data, while others enable patients to manually input data. The implementation of telemedicine has further improved access to care, especially in remote areas. Telemedicine platforms enable remote consultations, visual patient monitoring, and integration of data from wearable devices. Meta-analyses show that this approach reduces mortality rates and the frequency of rehospitalizations[3]. New generations of integrated systems allow automatic analysis of vital parameters and the sending of alerts if deviations are detected (e.g., weight gain in heart failure patients)[4]. Digital monitoring of cardiology patients represents a significant advancement in contemporary cardiac care. This approach, however, carries challenges such as digital illiteracy, device unreliability, and personal data protection.

It is important to note that technology does not replace healthcare professionals but complements them, enabling better disease management. The nurse plays a crucial role in implementing digital monitoring. She educates the patient on proper device usage, analyzes data, recognizes changes, and coordinates further interventions in collaboration with the interdisciplinary team. They facilitate education, monitoring, analysis, and human interaction. Therefore, it is crucial to invest in the education and training of healthcare professionals, the standardization of medical devices, and ensuring equitable access to technology for all patients, irrespective of their age or level of digital literacy.

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