

Chapter 3

Leveraging AI Technologies for Preventing and Detecting Sudden Cardiac Arrest and Death

Bhagvan Kommadi

 <https://orcid.org/0000-0002-1098-1792>

Value Momentum, India

ABSTRACT

AI is used for alerting people who are suffering from heart problems. The patient's language, sound, accent, voice, and other patterns are analyzed in an audio call for heart problems. The CPR and defibrillation treatment is used. Delay in sudden cardiac arrest can create problems in the brain, and fatal implications might be there. Biosensors are recommended for heart patients, and they can be worn on the wrist to detect hypertrophic cardiomyopathy. This condition or disease occurs because of cardiac muscle thickening. This is the reason for heart failure, stroke, and fatality in heart patients. The other observation is outflow tract obstruction in the heart patients who had sudden cardiac deaths. This happens in patients who have high blood pressure and can be identified using blood pressure and echocardiography instruments.

By augmenting human performance, AI has the potential to markedly improve productivity, efficiency, workflow, accuracy, and speed, both for [physicians] and for patients ... What I'm most excited about is using the future to bring back the past: to restore the care in healthcare." — Eric Topol, MD, director and founder of Scripps Research Translational Institute

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INTRODUCTION

AI is used for alerting people who are suffering from heart problems. The patient's language, sound, ascent, voice, and other patterns are used to analyze an audio call for analyzing the heart patient's problems. CPR and defibrillation treatment are used. Delay in sudden cardiac arrest can create problems in the brain, and fatal implications might be there. Biosensors are recommended for heart patients, and they can wear on the wrist to detect hypertrophic cardiomyopathy. The biosensor helps in identifying Hypertrophic cardiomyopathy in heart patients. This condition or disease occurs because of cardiac muscle thickening. This is the reason for heart failure, stroke, and fatality in heart patients. The other observation is outflow tract obstruction in the heart patients who had sudden cardiac deaths. This happens in patients who have blood pressure and can be identified using blood pressure and echocardiography instruments.

As we all know, the heart is our body organ. The heart helps in pushing blood to our body after the oxygenation of the blood. Sudden cardiac arrest happens due to the heart not working.

It is due to electrical disturbance, which creates abnormal heartbeats. The heart stops pumping blood due to this abnormality. Human goes unconscious and it might result in death if ignored for more than 5 minutes.

Note: Sudden cardiac arrest happens to a patient with no alarm or a signal. It happens because of an electrical problem in the heart, which creates an abnormal heartbeat. The blood pushing stops and the heart can push the blood to the other organs, such as the lungs and brain.

The symptoms before sudden cardiac arrest happen to a human being:

- Sudden collapse
- Loss of consciousness
- Loss of breathing
- No heartbeat
- Difficulty in breathing
- Feeling dizzy
- Chest pain
- Nausea
- vomiting

Let us now look at the difference between sudden cardiac arrest, heart attack, and stroke.

Table 1 shows the difference between sudden cardiac arrest, heart attack, and stroke.

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