The Cardiac Diagnostic Prediction Applied to a Designed Holter

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Abstract : We have designed a Holter that measures the heart´s activity for over 24 hours, implemented a prediction methodology, and generate alarms as well as indicators to patients and treating physicians. Various diagnostic advances have been developed in clinical cardiology thanks to Holter implementation; however, their interpretation has largely been conditioned to clinical analysis and measurements adjusted to diverse population characteristics, thus turning it into a subjective examination. This, however, requires vast population studies to be validated that, in turn, have not achieved the ultimate goal: mortality prediction. Given this context, our Insight Research Group developed a mathematical methodology that assesses cardiac dynamics through entropy and probability, creating a numerical and geometrical attractor which allows quantifying the normalcy of chronic and acute disease as well as the evolution between such states, and our Tigum Research Group developed a holter device with 12 channels and advanced computer software. This has been shown in different contexts with 100% sensitivity and specificity results.

Keywords : attractor , cardiac, entropy, holter, mathematical , prediction

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