Heart failure survival prediction using machine learning algorithm: am I safe from heart failure?

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1. **Summary:**
   - 1.1. **Motivation:**
     Heart Failure (HF) is a prevalent ailment worldwide, and despite significant medical advancements in the past few decades, cardiovascular disease is still the leading cause of death.
   - 1.2. **Contribution:**
     This study aims to develop prediction models for patient survival in HF conditions.
   - 1.3. **Methodology:**
     This study aims to develop prediction models for patient survival in HF conditions. Mathine learning classifiers used in this publication are: Logistic regression, decision tree, support vector machine, XGBoost, LightGBM, Random Forest, KNN, Bagging.
   - 1.4. **Conclusion:**
     Their analysis indicates that **LightGBM** achieved the **highest Accuracy of 85%** and **AUC of 93%** in predicting patient survival of HF patients compared to other machine learning algorithms.
2. **Limitations:**
   - 2.1. **First Limitation:**
     The sample size of the data is small, with only 299 samples. That influences the research's reliability.
   - 2.2. **Second Limitation:**
     The paper's conclusion hasn't been applied to real life. So it cannot be said the accuracy will be shown in real life application.
   - 2.3. **Third Limitation:**
     The dataset is imbalanced. So, the result may contain bias.
3. **Synthesis:**
   Machine learning models are increasingly being used in predicting disease conditions and relevant healthcare outcomes. The importance of ML in detecting hidden discrete patterns and analyzing the data is critical since it can successfully predict heart failure and survival.