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## Linguistic Variable Elimination for a Heart Failure Dataset

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### Abstract

Patients with heart failure often suffer disabling symptoms. In addition to these symptoms, half of all patients diagnosed with heart failure die within four years. The prevalence of heart failure is currently about 2%-3% of the adult population and it is expected to grow. It is interesting to predict if a patient with heart failure dies soon so that life-threatening situations and costs are minimized. In this paper, a data mining method for discovering fuzzy rules with different truth level thresholds in linguistic variable elimination for prediction of death on the basis of data available in hospitals is presented. Cognitive uncertainties are taken into consideration through the use of fuzzy sets, membership functions and membership degrees. The accuracy of the prediction of the death for a patient with heart failure and the interpretability of fuzzy rules are discussed. Our study shows, in comparison to other data mining methods, that it is useful for this type of prediction.

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