

Predication of the risk of anaphylaxis during the general anesthesia

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In present study, we aimed to investigate the feasibility of machine-learning-based classification using clinical features of patients for risk predication of anesthesia-related anaphylaxis.

After data pre-processing, the performance of four classification methods, which were integrated with four feature selection methods, were evaluated using two-layer cross-validation. Linear Discriminate Analysis in conjunction with Recursive Feature Elimination presented the best performance, with accuracy of 0.867 and Matthews correlation coefficient of 0.558 with 25 features used in the classification.

This study presents initial proof of the capability of a machine-learning-based strategy for forecasting low-prevalence anesthesia-related anaphylaxis. In future, we plan to utilize an extended database including preoperative information and vital-sign streams to define personalized risk status for anaphylaxis.