

Finding patterns of glycemia behavior for prediction of nocturnal hypoglycemia

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The problem of nocturnal hypoglycemia is important due to its connection to human's health. In some cases it can lead to fatal consequences because people sometimes can not feel nocturnal hypoglycemia event in time they are asleep.

The aim is to predict nights when there is a risk of it. We have the data from DirecNet about the level of glucose of different patients during some period with the interval of 10 minutes.

These data have been already filtered, smoothed out, sampled and the most important peaks were identified. It was decided to solve the task of prediction using the classification approach, not the regression one. This task was reduced to the problem of finding patterns of glycemia behavior during days when nocturnal hypoglycemia event was noticed. Some of patterns that have been found include parabolic behavior, reaching the critical maximum value of glucose level and fluctuations within a slight deviation from the minimum allowable value of it during the day.