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2019

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Pancreatic cancer (PC) has very high mortality, only 5% of patients survive longer than 3–5 years, this is mostly due to late diagnosis.[1] Nowadays, the PC diagnosis is mainly limited by non-specific early symptoms (weakness, nausea, or abdominal pain) and methods with low sensitivity and specificity.[2] Consequently, early specific symptoms and characteristic biomarkers remain a subject of intensive research.

In our study, ^{1}H NMR metabolomics was used to identify changes in the concentration of low molecular metabolites in the blood plasma of healthy controls, pancreatic cancer patients, long term type 2 diabetes mellitus patients and individuals with new-onset diabetes. Using ChenomX software, it was possible to quantify 65 metabolites across all samples. Subsequently, a statistical analysis (PCA, OPLS-DA, *t*-test and Wilcoxon rank sum test) of the concentrations was performed to distinguish the studied groups and to propose a biomarker panel for PC. Moreover, the statistical discrimination allowed to predict new-onset diabetic patients at risk of developing PC. To validate the obtained prediction model, the Monte Carlo cross-validation was performed.

Acknowledgment

The work was realized within Grant No. 16-31028A provided by the Ministry of Health of the Czech Republic and Specific University Research MSMT no. 21-SVV/2019.

References

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