

DISERTASI

**PENINGKATAN APOPTOSIS SEL BETA PANKREAS PADA
PREDIABETES DAN DIABETES MELITUS TIPE 2
BERDASARKAN KADAR SURVIVIN DAN
RAF-1 KINASE SERUM**

Penelitian observasional pada manusia



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ABSTRAK

PENINGKATAN APOPTOSIS SEL BETA PANKREAS PADA PREDIABETES DAN DIABETES MELITUS TIPE 2 BERDASARKAN KADAR SURVIVIN DAN RAF-1 KINASE SERUM

Eva Decroli

Penelitian observasional dengan disain, potong lintang ini bertujuan untuk mengungkap perbedaan kadar survivin dan raf-1 kinase pada prediabetes, DMT2 terkendali dan DMT2 tak terkendali dan kaitannya dengan HbA1C dan trigliserida serum pada kelompok diabetes. Pada penelitian ini kami melibatkan, 30 orang kelompok prediabetes, 30 orang kelompok DMT2 terkendali dan 30 orang kelompok DMT2 tak terkendali dan untuk mendapatkan nilai normal diambil 10 orang sehat non-diabetes. Kadar survivin dan raf-1 kinase diukur menggunakan teknik ELISA, HbA1C diukur menggunakan HPLC dan trigliserida diukur menggunakan teknik enzimatik. Pada penelitian ini kami membandingkan kadar survivin dan raf-1 kinase antara masing – masing kelompok. Selain itu juga dianalisis korelasi antara survivin dan raf-1 kinase dengan HbA1C dan trigliserida pada kelompok diabetes. Data dianalisis dengan uji t berpasangan, Mann Whitney dan korelasi Spearman dengan $P < 0.05$ dianggap bermakna.

Ditemukan bahwa kadar survivin pada DMT2 tak terkendali lebih rendah secara bermakna daripada DMT2 terkendali dan prediabetes. Kadar survivin pada kelompok DMT2 terkendali lebih rendah secara bermakna daripada prediabetes. Ditemukan bahwa kadar Raf-1 kinase pada DMT2 tak terkendali lebih rendah secara bermakna daripada DMT2 terkendali dan prediabetes. Kadar Raf-1 kinase pada kelompok DMT2 terkendali lebih rendah secara bermakna daripada prediabetes. Ditemukan adanya korelasi negatif yang bermakna antara HbA1C dengan survivin pada kelompok diabetes dan tidak ditemukan korelasi antara HbA1C dengan Raf-1 kinase. Tidak didapatkan perbedaan yang signifikan kadar survivin dan raf-1 kinase antara kelompok DMT2 yang normotrigliseridemia dengan DMT2 yang hipertrigliseridemia. Didapatkan korelasi negatif lemah antara kadar survivin serum dengan kadar trigliserida serum dan tidak ditemukan korelasi antara raf-1 kinase dengan kadar trigliserida serum pada kelompok diabetes.

Penelitian ini menyimpulkan bahwa kadar survivin dan raf-1 kinase ditemukan lebih rendah secara berturut-turut pada kelompok DMT2 tak terkendali, DMT2 terkendali, prediabetes dan pada prediabetes sebagian besar didapatkan kadar survivin dan raf-1 kinase lebih rendah dari kadar rata-rata normal. Tidak didapatkan perbedaan kadar survivin dan raf-1 kinase antara kelompok DMT2 yang normotrigliseridemia dengan DMT2 yang hipertrigliseridemia. Kadar survivin semakin rendah dengan semakin tingginya HbA1C, sedangkan kadar Raf-1 kinase tidak berkorelasi dengan HbA1c. Kadar survivin berkorelasi negatif dengan kadar trigliserida serum, sedangkan kadar raf-1 kinase tidak berkorelasi dengan kadar trigliserida serum.

Kata Kunci: Apoptosis, Sel Beta pankreas, Raf-1 kinase, Survivin, Diabetes Melitus

ABSTRACT

PANCREATIC BETA CELL APOPTOSIS ENHANCEMENT IN PREDIABETES AND TYPE 2 DIABETES MELLITUS BASED ON SURVIVIN AND RAF-1 KINASE SERUM LEVEL

Eva Decroli

Observational study with cross-sectional design was aimed to reveal differences in the level of survivin and raf-1 kinase in prediabetes, uncontrolled type 2 diabetes mellitus (T2DM) and controlled T2DM related to HbA1c and serum triglyceride in diabetes group. In this study, we included 30 people as prediabetes group, 30 people as controlled T2DM group, and 30 people as uncontrolled T2DM group, and to gather normal reference of survivin and raf-1 kinase level, we examined 10 non diabetic healthy people. Level of survivin and raf-1 kinase was measured using ELISA technique, HbA1c was measured using HPLC and triglyceride was measured using enzymatic technique. In this study, we compared the level of survivin and raf-1 kinase between prediabetes, controlled and uncontrolled T2DM. We also analyzed correlation between survivin and raf-1 kinase with HbA1c and triglyceride level in diabetic group. Data were analyzed with paired-t-test, Mann-Whitney, and Spearman correlation with $P < 0,05$ considered as significant.

It was found that the level of survivin in uncontrolled T2DM was significantly lower than in controlled T2DM and prediabetes group. Level of survivin in controlled T2DM group was significantly lower than in prediabetes group. It was found that the level of raf-1 kinase in uncontrolled T2DM was significantly lower than in controlled T2DM and prediabetes group. Level of raf-1 kinase in controlled T2DM group was significantly lower than prediabetes group.

We found a significant negative correlation between HbA1c with survivin in diabetes group and found no correlation between HbA1c with raf-1 kinase. There was no significant difference in the level of survivin and raf-1 kinase between T2DM group with normotriglyceridemia and T2DM group with hipertriglyceridemia. We obtained weak negative correlation between serum survivin level and serum triglyceride level and found no correlation between the raf-1 kinase and serum triglyceride level in the diabetic group.

This study concluded that the level survivin and raf-1 kinase were lower in controlled T2DM and even more in the uncontrolled T2DM. While HbA1c level was high, survivin level was low, whereas the level of raf-1 kinase was not correlated with HbA1c. Survivin level was negatively correlated with serum triglyceride level, while level of raf-1 kinase was not correlated with serum triglyceride level.

Keywords : Apoptosis, Pancreatic Beta Cell, Raf-1 kinase, Survivin, Diabetes Mellitus