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EFEKAT REPAGLINIDA NA PRVU FAZU SEKRECIJE INSULINA KOD OSOBA SA NARUŠENOM HOMEOSTAZOM GLIKOZE

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THE EFFECT OF REPAGLINIDE ON THE FIRST PHASE OF INSULIN SECRETION IN PERSONS WITH IMPAIRED GLUCOSE HOMEOSTASIS

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SAŽETAK

Uvod: Progresija od normalne ka narušenoj homeostazi glikoze (IGH) i, najzad, dijabetesu je udružena sa redukcijom senzitivnosti na insulin i progresivnom smanjenju akutnog insulinskog odgovora na glikozu (prva faza sekrecije insulina), koja je potpuno ugašena u trenutku nastupa dijabetesa. Repaglinid je insulinotropni agens kratkog dejstva koji stimuliše sekreciju insulina i koji ima novi profil oslobađanja insulina.

Cilj: Cilj ovog istraživanja je bio da se utvrdi da li jednokratna primena Repaglinid-a može da koriguje prvu fazu sekrecije insulina kod osoba sa IGH.

Metod: Pet pacijenata sa IGH je obuhvaćeno ovom studijom. Insulinska sekrecija je ispitivana intravenskim testom tolerancije glikoze sa učestalim uzimanjem uzoraka (FSIVGTT). Svaki pacijent je podvrgnut, tokom dva sukcesivna dana, ovom testu, prvog dana je izvođen regularan FSIVGTT, a sledećeg dana modifikovani FSIVGTT (30 min pre davanja glikoze pacijenti su per os uzimali 1,0 mg Repaglinid-a).

Rezultati: Pokazano je da Repaglinid povećava prvu fazu sekrecije insulina: površina ispod krive insulinemije tokom prvih 10 minuta nakon primene glikoze (pre 82.96 ± 77.04 vs posle 377.88 ± 374.33 , $p = 0.043$) i ukupan zbir insulinemije u prvom i trećem minutu FSIVGTT-a (pre 53.54 ± 39.64 vs posle 127.04 ± 100.60 , $p = 0.043$). Repaglinid ne utiče statistički značajno na drugu fazu sekrecije insulina kod osoba sa IGH. Takođe, kod ovih pacijenata, Repaglinid nije statistički značajno menjao metabolizam glikoze (procenjeno preko površine ispod krive glikemije tokom FSIVGTT-a, poluvremena iščezavanja glikoze ($T_{1/2}$) i Conard-ove konstante).

Zaključak: Repaglinid povećava prvu (ali ne i drugu) fazu sekrecije insulina u osoba sa IGH. Premedikacija Repaglinid-om ne utiče na metabolizam glikoze.

KLjučne reči: sekrecija insulina, narušena homeostaza glikoze, repaglinid, diabetes mellitus

ABSTRACT

Introduction: The progression from normal to impaired glucose homeostasis (IGH) and, finally diabetes is associated with a reduction in insulin sensitivity and a progressive decrease of the acute insulin response to glucose (the first phase of insulin secretion), which is lost at the onset of diabetes. Repaglinide is a short-acting, insulinotropic antidiabetic agent which stimulates insulin secretion and which has a novel insulin release profile.

Aim: The aim of this study was to investigate whether a single use of Repaglinide can correct the first phase of insulin secretion in persons with IGH.

Method: Five patients with IGH were included in the study. Insulin secretion was assessed by the frequently sampled intravenous glucose tolerance test (FSIVGTT). Each one underwent two FSIVGTT performed on two successive days, one day regular FSIVGTT and the day after, FSIVGTT modified by premedication 1,0 mg of Repaglinide.

Results: It was demonstrated that Repaglinide increases the first phase of insulin secretion: area under the curve of insulin of the plasma insulin concentration in the first 10 min after the administration of glucose (before 82.96 ± 77.04 vs after 377.88 ± 374.33 , $p = 0.043$) and the total sum of insulinemia in the first and the third minutes of FSIVGTT (before 53.54 ± 39.64 vs after 127.04 ± 100.60 , $p = 0.043$). Repaglinide does not influence the second phase of insulin secretion in persons with IGH. Also, in these patients, Repaglinide doesn't change significantly the metabolism of glucose (assessed by area under the curve of glucose during FSIVGTT, half-time of glucose disappearance rate ($T_{1/2}$) and Conard's constant).

Conclusion: Repaglinide increases the first (but not the second) phase of insulin secretion in persons with IGH. The metabolism of glucose was not affected by Repaglinide premedication.

Key words: insulin secretion, impaired glucose homeostasis, repaglinide, diabetes mellitus

