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2-TUR QANDLI DIABET VA MAJYK MAVJUD BEMORLARDA NGLT-2 INGIBITORLARINING JIGAR STEATOZI VA FIBROZIGA TA'SIRI

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Dolzarbligi. Metabolik assotsiatsiyalangan steatotik jigar kasalligi 2-tip qandli diabet bilan og'rigan bemorlarda eng ko'p uchraydigan komorbid holatlardan biri hisoblanadi. Insulinrezistentlik, dislipidemiya va adipokinlar disbalansi jigarda steatoz va fibroz rivojlanishida muhim ahamiyatga ega. So'nggi yillarda 2-tur natriy-glyukoza kotransportyor ingibitorlari (iNGLT-2) nafaqat gipoglikemik, balki qo'shimcha organoprotektor xususiyatlarga ham ega ekanligi haqida ma'lumotlar ortib bormoqda.

Tadqiqot maqsadi:2-tip qandli diabet va MAJYK mavjud bemorlarda NGLT-2 ingibitorlarining jigar steatozi va fibroz ko'rsatkichlariga ta'sirini baholash.

Tadqiqot materiallari va usullari: Tadqiqotga 2-tur qandli diabet bilan og'rigan 150 nafar bemor jalb qilindi. Bemorlar qabul qilayotgan glyukozapasaytiruvchi terapiya turiga ko'ra 4 guruhga ajratildi: biguanid va iNGLT-2 ingibitorlari qabul qilgan bemorlar, NGLT-2 ingibitorlari va bazal insulin terapiyasi olgan bemorlar, biguanid va DPP-4 ingibitorlari qabul qilgan bemorlar hamda biguanid va sulfonilmochevina preparatlari bilan davolangan bemorlar. Guruhlar o'rtasida jigar steatozi va fibrozi ko'rsatkichlari, shuningdek metabolik parametrlar dinamikasi qiyosiy baholandi.Jigar holati FibroScan (tranziyent elastografiya) usuli yordamida baholandi. Steatoz darajasi CAP (dB/m), fibroz darajasi esa LSM (kPa) ko'rsatkichlari asosida aniqlandi. Shuningdek, HbA1c, HOMA-IR, lipid profili, ALT, AST va adipokin ko'rsatkichlari tahlil qilindi.

Olingan natijalar.6 oylik davodan so'ng NGLT-2 ingibitorlari qo'llangan guruhlarda fibroskan CAP ko'rsatkichining ishonchli pasayishi kuzatildi. Xususan, biguanid va iNGLT-2 guruhida CAP 267,4±35,1 dB/m dan 238,6±27,4 dB/m gacha, iNGLT-2 + bazal insulin guruhida esa 265,8±33,9 dB/m dan 242,1±28,2 dB/m gacha kamaydi ($p<0,01$). Biguanid va DPP-4 ingibitorlari hamda biguanid va sulfonilmochevina guruhlarida ahamiyatli o'zgarish kuzatilmadi. LSM ko'rsatkichlari bo'yicha baholangan jigar fibrozi iNGLT-2 ingibitorlari qo'llangan guruhlarda biroz pasayish tendensiyasini namoyon qildi. Ammo farqalar ishonchi bo'lmadi. Shu bilan birga, CAP ko'rsatkichi bilan HOMA-IR, HbA1c, ALT, AST ijobiy korrelyatsion bog'liqlik aniqlandi. Eng kuchli korrelyatsiya biguanidlar va sulfonilmochevina guruhida CAP va HOMA-IR o'rtasida qayd etildi ($r=0,63$; $p<0,001$). iNGLT-2 ingibitorlari qo'llangan guruhlarda CAP ko'rsatkichi bilan triglitseridlar hamda adipokinlar (leptin va adiponektin) o'rtasida kuchli korrelyatsion bog'liqlik kuzatildi. Bu holat iNGLT-2 ingibitorlarining lipid almashinuvi va adipokinlar disbalansiga ta'sir ko'rsatish orqali jigar steatozini kamaytirishdagi muhim rolini ko'rsatadi.iNGLT-2 ingibitorlari qo'llangan guruhlarda TVI, HOMA-IR, HbA1c o'rtasida korrelyatsion bog'liqlik kuchining nisbatan pastligi mazkur preparatlarning mustaqil gepatoprotektor va antisteatotik ta'sirini ko'rsatishi mumkin.

Xulosalar:

iNGLT-2 ingibitorlari 2-tur qandli diabet va MAJYK mavjud bemorlarda jigar steatozini

kamaytirishda yuqori samaradorlikka ega bo‘lib, jigar fibrozining progressiyasini sekinlashtirishga ijobiy ta’sir ko‘rsatadi. Olingan natijalar ushbu preparatlarning qo‘shimcha gepatoprotektor va antisteatotik xususiyatlarga ega ekanligini tasdiqlaydi.

EFFECT OF SGLT-2 INHIBITORS ON HEPATIC STEATOSIS AND FIBROSIS IN PATIENTS WITH TYPE 2 DIABETES MELLITUS AND MASLD

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Metabolic dysfunction-associated steatotic liver disease (MASLD) is one of the most common comorbid conditions in patients with type 2 diabetes mellitus (T2DM). Insulin resistance, dyslipidemia, and adipokine imbalance play an important role in the development of hepatic steatosis and fibrosis. In recent years, increasing evidence has shown that sodium-glucose cotransporter-2 inhibitors (SGLT-2 inhibitors) possess not only glucose-lowering effects but also additional organ-protective properties. The study included 150 patients with type 2 diabetes mellitus. Patients were divided into four groups according to the type of glucose-lowering therapy received: patients treated with biguanides and SGLT-2 inhibitors, patients receiving SGLT-2 inhibitors combined with basal insulin therapy, patients treated with biguanides and DPP-4 inhibitors, and patients receiving biguanides with sulfonylurea therapy. Comparative assessment of hepatic steatosis, fibrosis parameters, and metabolic indicators was performed between the groups. Liver status was evaluated using FibroScan transient elastography. The degree of steatosis was assessed using the controlled attenuation parameter (CAP, dB/m), while liver fibrosis was evaluated using liver stiffness measurement (LSM, kPa). After 6 months of treatment, a significant decrease in FibroScan CAP values was observed in the groups treated with SGLT-2 inhibitors. In particular, CAP decreased from 267.4±35.1 dB/m to 238.6±27.4 dB/m in the biguanide + SGLT-2 inhibitor group and from 265.8±33.9 dB/m to 242.1±28.2 dB/m in the SGLT-2 inhibitor + basal insulin group ($p<0.01$). No significant changes were observed in the biguanide + DPP-4 inhibitor and biguanide + sulfonylurea groups. Liver fibrosis assessed by LSM demonstrated a tendency toward reduction in the SGLT-2 inhibitor groups; however, the differences were not statistically significant. At the same time, positive correlations were identified between CAP values and HOMA-IR, HbA1c, ALT, and AST levels. The strongest correlation was observed between CAP and HOMA-IR in the biguanide + sulfonylurea group ($r=0.63$; $p<0.001$). In the groups receiving SGLT-2 inhibitors, strong correlations were found between CAP values and triglycerides as well as adipokines (leptin and adiponectin). These findings indicate the important role of SGLT-2 inhibitors in reducing hepatic steatosis through their effects on lipid metabolism and adipokine imbalance. Furthermore, the relatively weaker correlations between CAP and BMI, HOMA-IR, and HbA1c in the SGLT-2 inhibitor groups may suggest independent hepatoprotective and anti-steatotic effects of these agents.

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