

EVALUACIJA EFEKATA TRETMANA SEMAGLUTIDOM NA PROSTORNU MEMORIJU I ANHEDONIJU U MODELU DIJABETESA TIP 2 KOD PACOVA OBA POLA

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Prostorna memorija može biti narušena kod pacijenata sa dijabetesom tipa 2 (T2D) čak i u ranim fazama bolesti. Pored ovoga, anhedonija se može javiti kod pacijenata sa T2D i negativno uticati na kvalitet života. Agonista receptora za glukagonu sličan peptid 1, semaglutid, pokazao je visoku kliničku efikasnost u regulaciji glikemije, ali noviji literaturni podaci sugerišu njegove efekte i na mozak. Ova studija je imala za cilj da proceni efekte terapije semaglutidom na prostornu memoriju i anhedoniju u modelu dijabetesa tipa 2 i gojaznosti kod starih pacova oba pola. Nakon validacije T2D modela, korišćeni su *Sprague-Dawley* pacovi oba pola koji su bili srednje dobi i koji su hranjeni dijetom sa visokim sadržajem masti i tretirani streptozotocinom. Životinje su dobijale ili vehikulum ili semaglutid i bile su podvrgnute različitim bihevioralnim testovima, uključujući test preferencije saharoze (SPT) i *Morris*-ov vodeni lavirint (MWM). Tretman semaglutidom nije uticao na vreme potrebno da se pronađe zona platforme u MWM *probe* testu, ali je identifikovan glavni efekat pola, tako da su ženke pokazale veće latence do zone platforme u odnosu na mužjake. Kod T2D ženki, tretman semaglutidom je povećao preferenciju saharoze u poređenju sa vehikulumom. Povećanje preferencije saharoze nakon primene tretmana semaglutidom bi moglo biti relevantno za pacijente sa T2D i promenama raspoloženja, a ovaj model bi mogao poslužiti za dalje istraživanje povezanih molekularnih mehanizama.

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EVALUATION OF SEMAGLUTIDE TREATMENT EFFECTS ON SPATIAL MEMORY AND ANHEDONIA IN DIABETES TYPE 2 RAT MODEL OF BOTH SEXES

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Spatial memory could be compromised in diabetes type 2 (T2D) patients even at early stages of the disease. In addition, anhedonia can co-occur in T2D patients and negatively impact quality of life. The glucagon-like peptide 1 receptor agonist semaglutide has demonstrated advanced clinical efficacy in glycemic regulation, but recent literature suggests its effects may extend beyond this. This study therefore aimed to assess the effects of semaglutide treatment on spatial memory and anhedonia in type 2 diabetes and obesity model in aging rats of both sexes. After validation of the T2D model, middle-aged Sprague-Dawley rats of both sexes, fed a high-fat diet and treated with streptozotocin, were used. They received either vehicle or semaglutide and underwent an extensive behavioral battery, including the sucrose preference test (SPT) and Morris water maze (MWM). Semaglutide treatment did not affect the latency to reach the platform zone in MWM probe test, but main effect of sex was identified, with females having higher values than males. In T2D females, semaglutide increased sucrose preference compared to vehicle. Semaglutide treatment was associated with increased sucrose preference, which could be relevant for T2D patients experiencing mood changes, and this model may serve for further investigation of underlying mechanisms.

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