

**THE IMPORTANCE OF METABOLIC HEALTH IMPROVEMENT IN PREGNANCY:
PROJECT "HDL STRUCTURE AND FUNCTION RESEARCH IN PREGNANCY"**

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Insulin resistance, hyperlipidemia, oxidative stress and low-grade inflammation are mechanisms underlying endothelial dysfunction and atherosclerosis development in non-pregnant state, but in pregnancy they are adaptive mechanisms responsible for fetal development without health risks for mothers. A special feature of lipids profile in pregnancy is increase in high density lipoprotein (HDL) cholesterol concentration. Protective role of HDL particles resides on its complex composition that goes beyond its cholesterol concentration and exhibits vasodilatory, antioxidant, anti-inflammatory and antithrombogenic effects. Even the importance of HDL functionality in pathogenesis of cardiovascular disease has been investigated and confirmed its role in persevering metabolic health in pregnancy are almost unexplored. Project "HDL research to improve pregnancy outcome" investigate the pattern of HDL particle distribution and functionality (HDL-ome) with different pregnancy outcomes. With the sophisticated analytical methods we determine HDL-ome in uncomplicated and high-risk pregnancies. We mark the HDL-ome component with a different pattern of change during high-risk pregnancies and test their potential for pregnancy complications risk assessment. In this this research we investigate molecular mechanisms crucial for HDL remodelling during pregnancy and possible associations between maternal metabolic health during pregnancy and maternal and child health in the future. Such comprehensive approach will provide a better insight into HDL role in maternal metabolic health during pregnancy and will open a door for further research in this area.

References

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ZNAČAJ OČUVANJA METABOLIČKOG ZDRAVLJA U TRUDNOĆI: PROJEKAT "ISPITIVANJE STRUKTURE I FUNKCIJE HDL-A U TRUDNOĆI"

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Insulinska rezistencija, hiperlipidemija, oksidativni stress i stanje inflamacije niskog stepena, koji se u negravidnom stanju povezuju sa razvojem endotelne disfunkcije i aterosklerozom, u trudnoći predstavljaju adaptivne mehanizme koji omogućavaju pravilan rast i razvoj fetusa, a ne ugrožavaju zdravlje trudnice. Specifičnost dislipidemije koja se razvija u trudnoći, a koja nije karakteristična za dislipidemiju u negravidnim stanjima, jeste porast koncentracije holesterola u lipoproteinskim česticama visoke gustine (high density lipoprotein, HDL). Međutim, HDL je mnogo više od sadržaja holesterola u njemu. Ovaj lipoprotein ima izuzetno kompleksnu i heterogenu strukturu i ispoljava vazodilatatorne, antioksidativne, antiinflamatorne i antitrombogene efekte. Iako je gubitak funkcionalnosti ovog lipoproteina u patogenezi kardiovaskularnih bolesti detaljno ispitan i potvrđen, njegova uloga u očuvanju metaboličkog zdravlja u trudnoći još uvek nije rasvetljena. Projekat "Ispitivanje HDL-metaboloma u cilju unapređenja ishoda trudnoće" bavi se istraživanjem povezanosti obrazaca promena strukture i funkcionalnosti HDL (HDL-om) sa različitim ishodima trudnoće. Sofisticiranim analitičkim metodama, određuje se HDL-om u visokorizičnim trudnoćama, kao i trudnoćama bez komplikacija. Izdvajaju se komponente HDL-oma koje imaju drugačiji obrazac promene tokom visoko rizičnih trudnoća i ispituje se njihov značaj u proceni rizika za razvoj komplikacija u trudnoći. Poseban aspekt ovog istraživanja odnosi se na ispitivanje molekularnih mehanizama ključnih za remodelovanje HDL tokom trudnoće, kao i potencijalne povezanosti metaboličkog statusa majke tokom trudnoće sa budućim kardiometaboličkim zdravljem majke i deteta. Ovako opsežno ispitivanje trebalo bi da pruži jasniji prikaz uloge HDL u očuvanju metaboličkog zdravlja tokom trudnoće i, kao takvo, predstavljaće polaznu tačku za dalja istraživanja u ovoj oblasti.

Literatura

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