MARKERS OF REDOX STATUS IN PATIENTS WITH NONALCOHOLIC FATTY LIVER DISEASE

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Nonalcoholic fatty liver disease (NAFLD) is the most common chronic liver disease, present in up to 30% of the adult population worldwide (1). Triglycerides accumulation in hepatocytes (steatosis) represents the root cause of NAFLD and is associated with oxidative stress, which could further lead to fibrosis and cell death of hepatocytes (2). The aim of this research was to identify redox status markers for predicting the risk of developing steatosis. 158 participants were included. Steatosis was confirmed by ultrasound in 101 subjects, while the remaining 57 were in the control group. The following markers of redox status were determined in serum and plasma samples of all subjects: superoxide dismutase 1 (SOD1), paraoxonase (PON1), malondialdehyde (MDA) and superoxide anion ($O_2^{.-}$). For this purpose, spectrophotometric methods and enzyme immunosorbent assays were used. SOD1 was statistically significantly higher (P<0.001), while $O_2^{.-}$ was significantly lower in the patient group (P<0.001). SOD1 was significantly negatively correlated with $O_2^{.-}$ (ρ= -0.494, P<0.001) and MDA (ρ= -0.242, P=0.002). Univariate binary logistic regression analysis showed a positive association between SOD1 and the presence of steatosis (OR=1.018, 95% CI 1.005-1.031; P=0.005), as well as a negative association between $O_2^{.-}$ and the presence of steatosis (OR=0.959, 95% CI 0.941-0.978; P<0.001). Multivariate analysis singled out SOD1 (OR=1.024, 95% CI 1.006-1.041; P=0.007) and $O_2^{.-}$ (OR=0.965, 95% CI 0.942-0.989; P=0.004) as independent predictors for the presence of steatosis in our subjects. The redox status parameters, SOD1 and O2, respectively, showed a positive and negative prediction of the presence of statosis in our subjects.

References

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MARKERI REDOKS STATUSA KOD PACIJENATA SA NEALKOHOLNOM MASNOM BOLEŠĆU JETRE

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Nealkoholna masna bolest jetre (eng. *nonalcoholic fatty liver disease, NAFLD*) je najčešće hronično oboljenje jetre, prisutno i u do 30% adultne populacije širom sveta (1). Značajnu ulogu u nastanku *NAFLD* ima akumulacija triglicerida u hepatocitima – steatoza, koja je povezana sa oksidativnim stresom, a koji dalje vodi fibrozi i ćelijskoj smrti hepatocita (2). Cilj ovog istraživanja bio je identifikacija markera redoks statusa za predviđanje rizika za nastanak steatoze. Studija je obuhvatila 158 ispitanika iz Kliničko bolničkog centra Zemun. Steatoza je potvrđena ultrazvukom kod 101 ispitanika, dok je preostalih 57 činilo kontrolnu grupu. U uzorcima seruma i plazme svih ispitanika određeni su sledeći markeri redoks statusa: superoksid dismutaza 1 (SOD1), paraoksonaza (PON1), malondialdehid (MDA) i superoksidni anjon (O_2^{-}). U tu svrhu korišćene su spektrofotometrijske metode i enzimski imunosorbentni testovi. SOD1 je bila statistički značajno viša (P<0,001), dok O_2^{-} značajno niži u grupi pacijenata (P<0,001), dok se PON1 i MDA nisu značajno razlikovali između grupa. SOD1 je bila u značajnoj negativnoj korelaciji sa O_2^{-} (ρ=-0,494, P<0,001) i MDA (ρ= -0,242, P=0,002). Univarijatna binarna logistička regresiona analiza je pokazala pozitivnu asocijaciju između SOD1 i prisustva steatoze (OR=1,018, 95% CI 1,005-1,031; P=0,005), kao i negativnu asocijaciju između O_2^{-} i prisustva steatoze (OR=0,959, 95% CI 0,941-0,978; P<0,001). Multivarijantna analiza je izdvojila SOD1 (OR=1,024, 95% CI 1,006-1,041; P=0,007) i O_2^{-} (OR=0,965, 95% CI 0,942-0,989; P=0,004) kao nezavisne prediktore za prisustvo steatoze kod naših ispitanika. Parametri redoks statusa, SOD1 i O_2^{-} redom, su pokazali pozitivnu, odnosno negativnu predikciju prisustva statoze kod naših ispitanika.

Literatura

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