

# PROTEIN AND LIPID CONCENTRATIONS IN PATIENTS WITH DIFFERENTIATED THYROID CANCER TREATED WITH RADIOACTIVE IODINE-131

Olgica Mihaljević<sup>1</sup>, Snezana Radivojević<sup>2</sup>, Svetlana Djukic<sup>1,2</sup>, Ljiljana Mijatovic Teodorovic<sup>1,2</sup>, Irena Kostić<sup>1</sup>, Ilija Jeftić<sup>1</sup>, and Snezana Zivancevic Simonovic<sup>1</sup>

<sup>1</sup>Faculty of Medical Sciences, University of Kragujevac, Kragujevac, Serbia

<sup>2</sup>Clinical Centre Kragujevac, Kragujevac, Serbia

## KONCENTRACIJA PROTEINA I LIPIDA KOD PACIJENATA SA DIFERENTOVANIM KARCINOMOM ŠTITASTE ŽLEZDE KOJI SU LEČENI RADIOAKTIVNIM JODOM-131

Olgica Mihaljević<sup>1</sup>, Snezana Radivojević<sup>2</sup>, Svetlana Đukić<sup>1,2</sup>, Ljiljana Mijatović Teodorović<sup>1,2</sup>, Irena Kostić<sup>1</sup>, Ilija Jeftić<sup>1</sup>, and Snežana Živančević Simonović<sup>1</sup>

<sup>1</sup>Fakultet medicinskih nauka, Univerzitet u Kragujevcu, Kragujevac, Srbija

<sup>2</sup>Klinički centar Kragujevac, Kragujevac, Srbija

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### ABSTRACT

Short-term, overt hypothyroidism in patients with differentiated thyroid cancer (DTC) before radioiodine (131-I) therapy might be accompanied by a number of metabolic changes, including altered protein and lipid metabolism. Protein concentrations and their relationship to lipids in the serum of DTC patients have not been fully elucidated. The aim of our study was to evaluate the protein and lipid concentrations in 24 DTC patients before and 3 and 7 days after 131-I therapy compared with those of 20 healthy control subjects. After radioiodine therapy, the mean protein concentration ( $78.71 \pm 6.71$  g/L vs.  $87.16 \pm 6.04$  g/L;  $p = 0.003$ ) and cholesterol level ( $8.12 \pm 2.13$  mmol/L vs.  $8.84 \pm 2.09$  mmol/L;  $p = 0.001$ ) were lower 3 days after therapy; this persisted up to 7 days after therapy, whereas triglyceride concentrations were higher 3 days after therapy ( $2.44 \pm 1.07$  mmol/L vs.  $2.26 \pm 1.08$  mmol/L;  $p = 0.041$ ) and returned towards the pretreatment values at 7 days after 131-I therapy. There was an indirect correlation between the protein and triglyceride concentrations 3 days after 131-I therapy in patients over 50 years old (Spearman's  $r = -0.583$ ,  $p = 0.048$ ) but not in patients under 50 years old (Pearson's  $r = -0.277$ ,  $p = 0.384$ ). Radioiodine therapy of DTC patients led to decreased serum protein and cholesterol concentrations, accompanied by increased triglyceride levels; these changes were especially evident in older subjects with metastases.

**Keywords:** cholesterol; differentiated thyroid cancer; proteins; radioiodine therapy; triglycerides

### SAŽETAK

Prolazna, manifestna hipotireoza koja se javlja kod pacijenata sa diferentovanim karcinomom štitaste žlezde (DTC) pre terapije radioaktivnim jodom (131-I) može biti udružena sa brojnim metaboličkim promjenama, uključujući i promjene u metabolizmu proteina i lipida. Koncentracija proteina i njihov odnos sa lipidima u serumu pacijenata sa DTC nakon terapije 131-I nedovoljno su ispitani. Cilj našeg istraživanja bio je da se ispita serumska koncentracija proteina i lipida kod pacijenata sa DTC pre, kao i tri i sedam dana posle terapije 131-I. Studijom je obuhvaćeno 24 DTC pacijenata i 20 zdravih ispitanika. Pokazano je značajno, progresivno smanjenje koncentracije proteina ( $78.71 \pm 6.71$  g/L vs.  $87.16 \pm 6.04$  g/L;  $p = 0.003$ ) i holesterola ( $8.12 \pm 2.13$  mmol/L vs.  $8.84 \pm 2.09$  mmol/L;  $p = 0.001$ ) tri dana nakon terapije 131-I, uz statistički značajno povećanje koncentracije triglicerida tri dana nakon terapije ( $2.44 \pm 1.07$  mmol/L vs.  $2.26 \pm 1.08$  mmol/L;  $p = 0.041$ ) i povratkom na preterapijske vrednosti 7 dana posle terapije. Pri tom, indirektna korelacija između koncentracije proteina i triglicerida tri dana posle 131-I pokazana je u grupi pacijenata starijih od 50 godina (Spearman  $r = -0.583$ ,  $p = 0.048$ ), što nije bio slučaj sa ispitanicima mlađim od 50 godina (Pearson  $r = -0.277$ ,  $p = 0.384$ ). U zaključku, terapija radioaktivnim jodom prouzrokuje smanjenje koncentracije serumskih proteina i holesterola, koje je udruženo sa povećanjem koncentracije triglicerida i posebno je izraženo kod starijih pacijenata sa metastazama.

**Ključne reči:** holesterol; diferentovani karcinom štitaste žlezde; proteini; radiojodna terapija; trigliceridi













