Tara Rolic^{1,2}, Mazyar Yazdani³, Sanja Mandic^{1,4}, Sonia Distante³

1 Department of Chemistry, Biochemistry and Clinical Chemistry, Faculty of Medicine, University of Osijek, Osijek, Croatia 2 Institute of Clinical Laboratory Diagnostics, Osijek University Hospital Centre, Osijek, Croatia OSLO UNIVERSITETSSYKE 3 Department of Medical Biochemistry, Oslo University Hospital, Rikshospitalet, Oslo, Norway 4 Medical-biochemisty laboratory, Policlinic LabPlus, Osijek, Croatia

HEPCIDIN CONCENTRATIONS IN COLORECTAL CANCER

- Iron dysregulation is implicated in cancer development.
- Hepcidin regulates iron absorption and metabolism, potentially affecting iron availability for cancer cells.

The aim of the study was to measure serum **hepcidin** and **ferritin** levels in colorectal cancer (CRC)



INTRODUCTION

patients and compare them to a healthy control group.

Blood samples were collected in the morning from 82 (fasting) non-metastaic CRC patients and 58 controls.



			TC
R	ESI	UL	. 15

	CRC N=82	CONT N=58
M/F	60/22 73%/27%	53/5 91%/9%
AGE - YEARS (RANGE)	65 (46-79)	58 (55-61)

TABLE 1. Demographic characteristics of the patients
--

	CRP, Fe	rritin, Transferi Iron - spect eckman Coulter	rin - immun rophotomet r Olympus [oturbidim ry DxC700	Fe
Analyte (unit)	CRC N=82	CONT N=58	P-value	Spearn correla	nan's rho tion data
Hepcidin-25 (ng/mL)	8.1 (5.5-14.0)	19.7 (12.1-26.8)	<0.05	CRC	CONT
CRP (mg/L)	3.0 (2.3-4.8)	5.3 (2.2-33.2)	0.10	0.26	0.52
Iron (µmol/L)	13.6 (10.6-15.8)	13.8 (10.8-15.8)	0.44	0.22	-0.38

$9 (11\%)$ $28.2 \\ (13.8 - 42.0)$ Transferrin (g/L) $3 (4\%)$ $87.0 \\ (33.2 - 120.2)$ TABLE 2. Iron metabor Spearman's rho correction $14 (17\%)$ $29.5 \\ (7.2 - 36.7)$ Analytic (writh)	$9 (11\%)$ $28.2 \\ (13.8 - 42.0)$ Transferrin (g/L) $3 (4\%)$ $87.0 \\ (33.2 - 120.2)$ TABLE 2. Iron metabors spearman's rho correst $14 (17\%)$ $29.5 \\ (7.2 - 36.7)$ Analyte (unit)	$9 (11\%)$ $28.2 \\ (13.8 - 42.0)$ Transferrin (g/L) $3 (4\%)$ $87.0 \\ (33.2 - 120.2)$ TABLE 2. Iron metabor spearman's rho correction $14 (17\%)$ $29.5 \\ (7.2 - 36.7)$ Analyte (unit) $38 (46\%)$ $6.17 \\ (2.8 - 9.0)$ CEA (μ g/L)	N (%) CRC	Hepcidin ng/ml (IQR)	Ferritin (µg/L)	
3 (4%) 87.0 TABLE 2. Iron metabo $(33.2 - 120.2)$ Spearman's rho correl $14 (17%)$ 29.5 $(7.2 - 36.7)$ Analytic (unit)	3 (4%) 87.0 (33.2 - 120.2) TABLE 2. Iron metabo Spearman's rho correl 14 (17%) 29.5 (7.2 - 36.7) Analyte (unit)	3 (4%) 87.0 (33.2 - 120.2) TABLE 2. Iron metabor Spearman's rho correl 14 (17%) 29.5 (7.2 - 36.7) Analyte (unit) 38 (46%) 6.17 (2.8 - 9.0) CEA (µg/L)	9 (11%)	28.2 (13.8 – 42.0)	Transferrin (g/L)	
14 (17%) $(7.2 - 36.7)$ A polyto (100 correct)	14 (17%) 29.5 (7.2 – 36.7) Analyte (unit) 6.17 Ended to the test of the test of	14 (17%) 29.5 (7.2 – 36.7) Analyte (unit) 38 (46%) 6.17 (2.8 – 9.0) CEA (μg/L)	3 (4%)	87.0 (33.2 – 120.2)	TABLE 2. Iron meta	abo rrol
	6.17	(7.2 - 30.7) Analyte (unit) $(2.8 - 9.0)$ $(2.8 - 9.0)$	14 (17%)	29.5 (7 2 - 36 7)		

109 250 < 0.05 0.62 0.84 78-140) (130-485) 2.9 2.3 < 0.01 -0.43 -0.72 (0.7) (0.8)

parameters and CRP in CRC patients and controls is for hepcidin-25 in both groups

7%)	29.5 (7.2 – 36.7)	Analyte (unit) CRC N=82
6%)	6.17 (2.8 – 9.0)	CEA (µg/L) 2.9 (2.6-5.3)
2%)	25.0	CA19-9 (kIU/L) 11.4 (8.3-18.3)
~ /0j	%) (5.4 – 30.4)	TABLE 4. Tumor markers levels in the CRC gro

TABLE 3. TNM staging and hepcidin-25 serum levels in CRC

CONCLUSION



- The CRC had lower levels of hepcidin and ferritin compared to CONT.
- The correlation between hepcidin and ferritin was weaker in CRC patients than in CONT.
- CRC patients showed a positive correlation between <u>hepcidin</u> and <u>iron</u>, while CONT had a negative correlation, suggesting altered iron metabolism in CRC.
- Hepcidin-25 levels decreased with advancing cancer stage (stage T3 = the lowest hepcidin-25 values).
- These findings point at the potential of *hepcidin* both as a diagnostic tool and therapeutic target in CRC.

tararolic@gmail.com

sonia.distante@ous-hf.no