

CORELATII INTRE DISFUNCTIA ENDOTELIALA SI CELULELE ENDOTELIALE CIRCULANTE IN BOALA RENALA CRONICA

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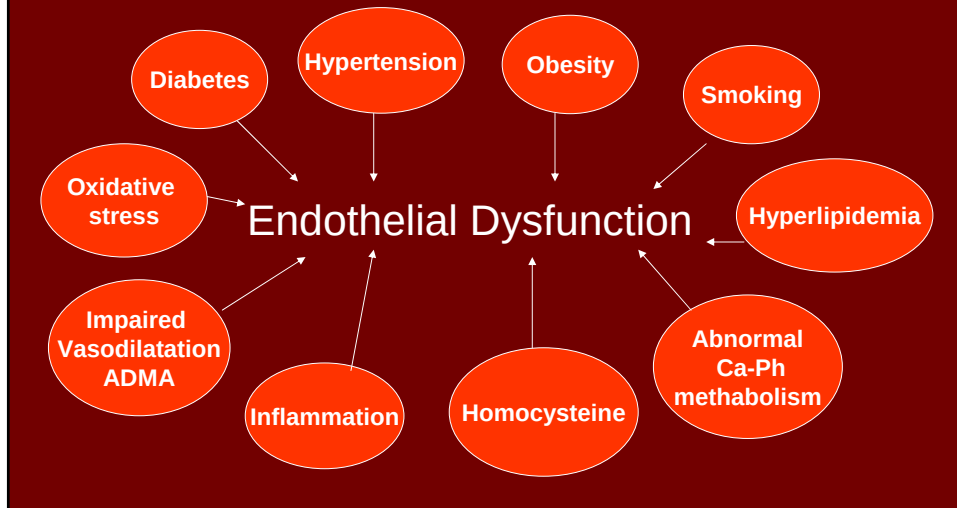
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DISFUNCTIA ENDOTELIALA (ED)

ED este caracterizata de modificarea proprietatilor endoteliului prin:

- vasodilatatie redusa
- stare pro-inflamatorie
- status protrombotic

Factori traditionali si netraditionali implicati in aparitia ED



Manifestari ale ED

Preclinic

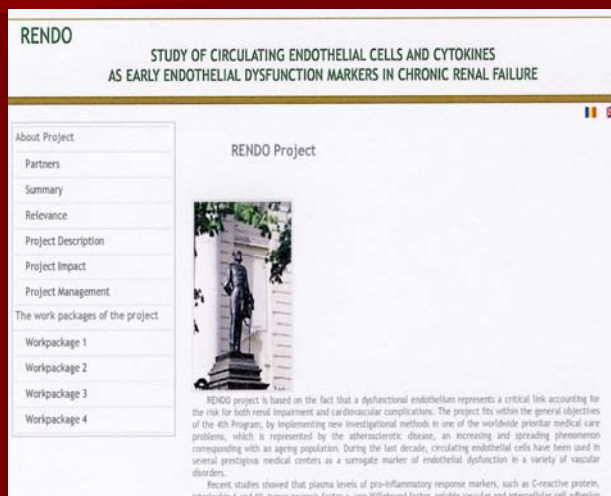
- nivele anormale ale markerilor surogati

Clinic

- evenimente cardiovasculare
- ateroscleroza
- stenoza
- insuficienta cardiaca
- insuficienta renala cronica

Proiectul RENDO

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Proiectul RENDO

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Project Director: Prof. Dr. Mihai Voiculescu

Participant no.	Organisation name
1. UMF - CD (Coordinator)	<i>"Carol Davila"</i> University of Medicine and Pharmacy Bucharest Center of Internal-Medicine and Nephrology Fundeni
2. INBP – NS	<i>"Victor Babes"</i> National Institute for Research and Development in Pathology and Biomedical Sciences
3. CGEMUS	<i>"Prof. Dr. CC. Iliescu"</i> Institute of Cardiovascular Diseases

RENDO - scop

Extinderea cunostintelor in abordarea noninvaziva a ED la pacientii cu boala renala cronica.

Evaluarea si validarea unor noi metode de investigatie in scopul depistarii precoce a ED.

RENDO

Criterii de includere:

- Varsta 18 – 75 ani
- Nefropatie diabetica
- Nefropatie tubulointerstitala
- Nefropatie hipertensiva
- Hemodializa

RENDO

Distribution of patient groups in accordance with CKF stage

	<i>No of patients</i>	<i>CKD stage 2</i>	<i>CKD stage 3</i>	<i>CKD stage 4</i>	<i>CKD stage 5</i>
DM group	9	2 (22.2%)	5 (55.6%)	2 (22.2%)	
HN group	8	1 (12.5%)	5 (62.5%)	2 (25%)	
NTI group	7		5 (71.4%)	2 (28.6%)	
HD group	10				10 (100%)
Total	34	3	15	6	10

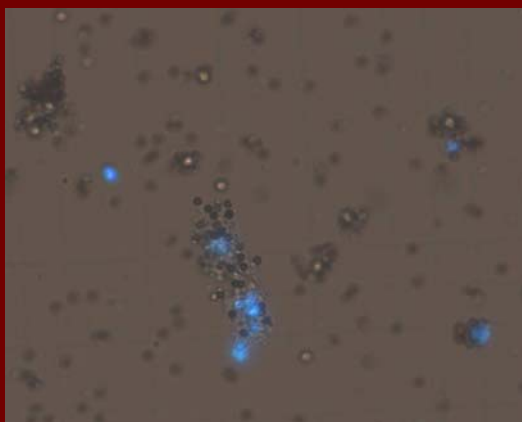
Abordarea disfuncției endoteliale

Biomarkerii disfuncției endoteliale:

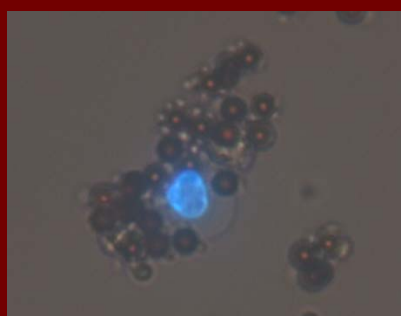
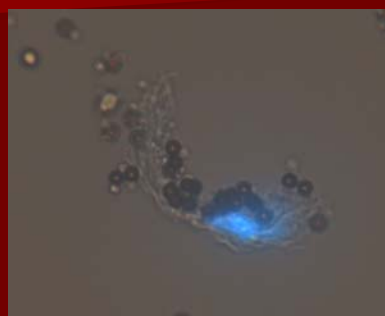
- Intercellular adhesion molecules (ICAM-1)
 - Vascular adhesion molecules (VCAM-1)
 - von Willebrand Factor
 - E-selectin
 - C Reactive Protein
 - **Interleukin – 6**
 - **Tumoral necrosis factor-alpha**
 - **Interleukin – 10**
 - Adiponectine
 - Visfatine
 - Resistine
- } Pro-inflammatory cytokines
 } Anti – inflammatory cytokine

Abordarea disfuncției endoteliale

Izolarea imunomagnetica a CEC



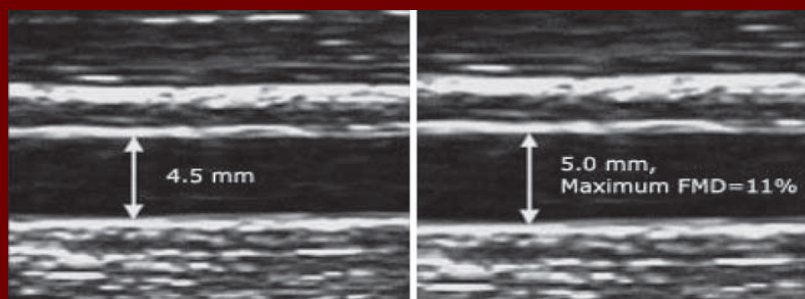
Abordarea disfuncției endoteliale



Abordarea disfuncției endoteliale

- Vasodilatație dependentă de endoteliu (Flow-Mediated Vasodilatation) - **FMD**
- Vasodilatație independentă de endoteliu (nitroglycerin – mediated vasodilatation) – **NMD**
- Măsurarea complexului intimă – media a nivelului arterelor carotide comune

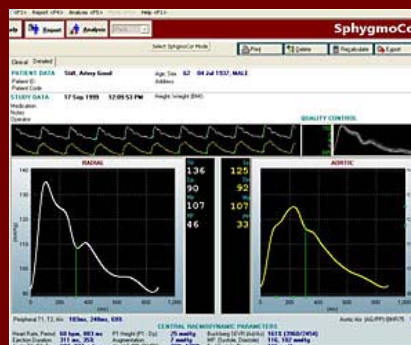
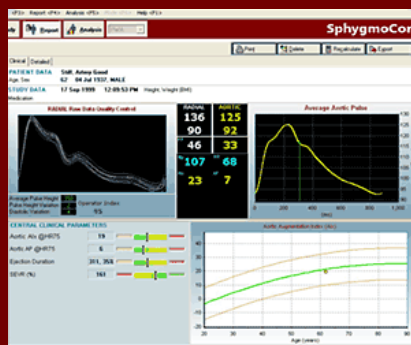
Abordarea disfuncției endoteliale



Abordarea disfuncției endoteliale

- **Rigiditatea arterială:**

Velocitatea undei pulsului (PWV)



Caracteristicile bazale si factorii de risc cardiovascular

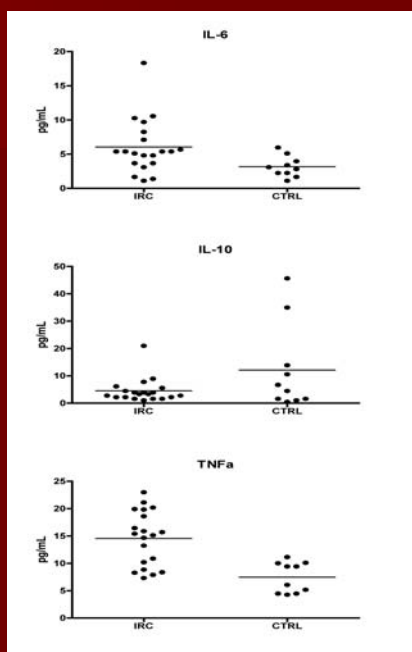
	<i>CKD stage 2</i>	<i>CKD stage 3</i>	<i>CKD stage 4</i>	<i>Hemodialysis</i>
<i>Number of pts</i>	<i>3</i>	<i>15</i>	<i>6</i>	<i>10</i>
Age	68.3 ± 1.1	64.3 ± 10.9	69.1 ± 8.5	57.5 ±13.1
Male gender	66.7%	64.3%	50%	80%
Smoking	0	7.7%	0	10%
Diabetes mellitus	66.7%	35.7%	33.3%	20%
HTA	66.7%	92.9%	100%	88.9%
Dyslipidemia	66.7%	70%	80%	55.6%
Obesity	33.3%	28.5%	16.6%	30%

Rezultate preliminare RENDO

Biomarkeri si CEC

	<i>CKD stage 2</i>	<i>CKD stage 3</i>	<i>CKD stage 4</i>	<i>Hemodialysis</i>	<i>Control</i>
<i>IL-6 (pg/ml)</i>	3.9 ± 2.2	5.2 ± 2.9	9.0 ± 5.8	7.5 ± 3.0	3.1 ± 1.5
<i>IL-10 (pg/ml)</i>	3.2 ± 1.5	4.0 ± 2.3	8.0 ± 7.2	2.4 ± 0.4	6.4 ± 2.4
<i>TNF-α (pg/ml)</i>	8.9 ± 1.0	15.4 ± 3.8	17.2 ± 4.0	19.7 ± 4.6	7.4 ± 1.8
<i>CECs (no)</i>	107.3 ± 35.3	139.9 ± 99.1	262.8 ± 203.7	120.5 ± 79.0	20.2 ± 12.4

Biomarkeri



Rezultate preliminare RENDO

Examinarea ultrasonografica

	<i>CKD stage 2</i>	<i>CKD stage 3</i>	<i>CKD stage 4</i>	<i>Hemodialysis</i>	<i>Control</i>
<i>FMD</i>	4.1 ± 0.7	6.7 ± 6.0	4.4 ± 2.5	4.5 ± 3.1	21.9 ± 9.4
<i>NMD</i>	14.2 ± 5.3	12.5 ± 6.4	12.0 ± 3.5	17.6 ± 11.1	21.3 ± 11.2
<i>IMT</i>	0.93 ± 0.11	0.84 ± 0.16	0.85 ± 0.04	0.81 ± 0.17	0.60 ± 0.13

Rezultate preliminare RENDO

Examinarea rigiditatii arteriale

	<i>CKD stage 2</i>	<i>CKD stage 3</i>	<i>CKD stage 4</i>	<i>Hemodialysis</i>	<i>Control</i>
<i>AoSP</i>	136.5 ± 16.2	127.3 ± 18.9	141.0 ± 23.6	137.0 ± 24.8	112.3 ± 12.5
<i>AoPP</i>	50.5 ± 9.1	45.7 ± 13.1	60.1 ± 15.8	53.6 ± 16.2	36.2 ± 6.3
<i>AiX</i>	20.5 ± 0.7	21.3 ± 10.9	25.5 ± 10.7	31.0 ± 12	15.6 ± 7.2
<i>PWV</i>	8.8 ± 0.4	9.3 ± 2.5	11.5 ± 5.0	8.2 ± 2.53	7.35 ± 2.0

Rezultate preliminare RENDO

Group of CKF patients	FMD (mean %)	NMD (mean %)	IMT (mean N)	PWV (mean N)	CECs (mean N)
<i>DM group</i>	4.35±2.26	14.43±18.0	0.95±0.15	12.26±3.03	174.11±134.16
<i>HN group</i>	3.98±1.92	13.5±3.28	0.87±0.14	10.61±3.77	170.291±143.36
<i>NTI group</i>	4.21±1.18	14.3±3.2	0.75±0.11	7.06±1.01	178±170.1
<i>HD group</i>	4.56±3.12	17.63±11.1	0.81±0.17	8.2±2.53	120.57±79.0
<i>Control group</i>	21.9±9.44	21.3±11.17	0.6±0.13	7.35±2.0	64.0±33.26

CONCLUZII

- ED poate fi diagnosticata inca din fazele initiale ale bolii renale cronice.
- Boala renala cronica este insotita de ingrosarea complexului intima-media la nivelul ACC si de alterarea functiei diastolice la nivelul arterei brahiale.
- Nivelul CEC poate fi corelat cu alterarea functiei vasculare.
- S-a observat o crestere importanta a citokinilor pro-inflamatorii la pacientii cu boala renala cronica.

