

CO MŮŽE ŘÍCI
ENDOKRINOLOG TRAUMATOLOGOVI

Rajko DOLEČEK - Leopold PLEVA

FAKULTNÍ NEMOCNICE OSTRAVA

**STUDIE ŘADY ENDOKRINNÍCH I JINÝCH UKAZATELŮ
UKÁZALY NA DALŠÍ MOŽNOST ZLEPŠENÍ PROGNOZY
I PRŮBĚHU LÉČBY ZÁVAŽNÝCH TRAUMAT, POPÁLENÍ**

**U POPÁLENÝCH TATO STUDIE TRVÁ JIŽ PŘES 55 LET,
U NEMOCNÝCH PO POLYTRAUMATECH PŘES 15 LET**

**TÝMOVÁ SPOLUPRÁCE ZDRAVOTNÍKŮ (LÉKAŘŮ, SES-
TER, LABORATORNÍCH PRACOVNÍKŮ) RŮZNÝCH OBO-
RŮ JE ZCELA NEZBYTNÁ, MUSÍ BÝT ZCELA PŘÁTELSKÁ**

BI – BURN INDEX

1% III° BURN - 1 POINT

1% II° BURN – ½ POINT

ISS – INJURY SEVERITY SCORE

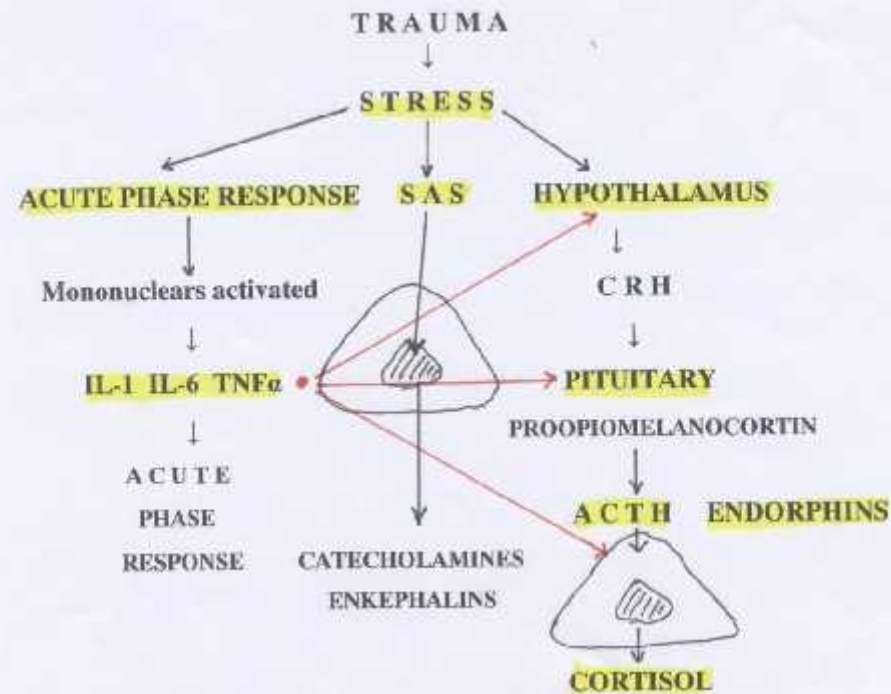
(ISS > 30 – severe trauma)

LOW TO VERY LOW VALUES

HIGH TO VERY HIGH VALUES

TO BE NOTED

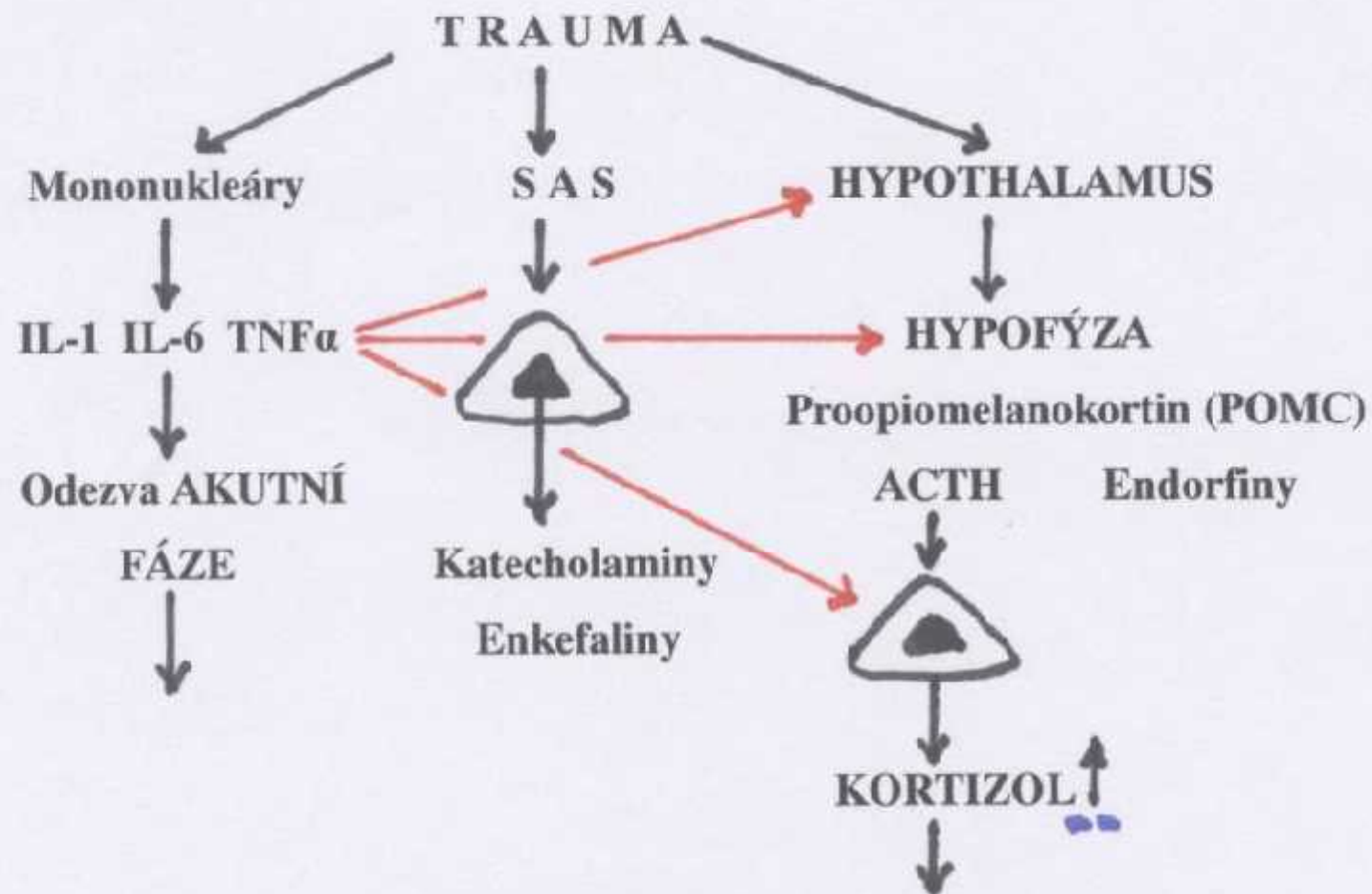
ODBĚRY KRVE (MOČE) BYLY PROVÁDĚNY V DEN
ÚRAZU (POPÁLENÍ), ZA 7, 14, 28, (NĚKDY ZA 56)
DNŮ, ZA 1/2 ROKU (180 DNŮ), ZA ROK (365 DNŮ)



N=26, M+F, ISS 40±6 CORTISOL 622±225 nmol/l PTH 159±157 pg/ml
 tCa 1.92±0.41 mmol/l IL-6 294±231 ng/l ACP 72±45 nkat/l
 THE DAY OF TRAUMA

SJ, M, ISS 41, 20yrs. CORTISOL 22 nmol/l PTH 299 pg/ml
 tCa 1.40 mmol/l IL-6 1000 ng/l ACP 520 nkat/l
 HE DIED LATER DURING 24 HRS AFTER TRAUMA

JJ, M, BI 19, 78 CORTISOL 240 nmol/l 25OH vit.D 5.9 µg/l
 tCa 1.8 iCa 1.04 mmol/l IL-6 227 ng/l ACP 319 nkat/l PTH 27 pg/ml
 sIL-2R 4809 kU/l 17β-Estradiol 434 pmol/l Testost. 1.29 nmol/l
 24 hrs premortally



ŠM, M, ISS 57, 18 letý KORT. 198 nmol/l PTH 622 pg/ml
tCa 1,68 mmol/l IL-6 >1000 ng/l Kys.FOSFAT. 476 nkat/l
 V den ÚRAZU (+)

IGF 1 (µg/l), TESTOSTERONE (nmol/l–males only), 17β-ESTRADIOL (pmol/l–males only), OSTEOCALCIN (µg/l),
DEOXYPYRIDINOLINE (nM/mM creat.), PROLINE-HYDROXYPROLINE (µM/mM creat.)

INDICATOR, DAYS AFTER BURN	1	7	14	28	½ year	one year	N
<u>IGF - 1</u>	174±65	210±109	287±130	325±155	327±69	302±143	17
<u>TESTOSTERONE</u>	1.85±1.40	1.95±1.44	5.88±5.21	12.55±6.19	12.86±4.86	15.56±5.88	20
<u>17β-ESTRADIOL</u>	226±103	191±106	154±73	127±67	100±46	97±60	17
<u>OSTEOCALCIN, OC</u>	6.60±5.97	9.06±5.39	11.41±8.87	17.61±12.01	18.44±11.22	18.57±11.70	23
<u>DEOXYPYRIDINOLINE</u>	5.81±2.20	8.91±6.71	20.2±16.6	21.4±21.1	19.0±20.3	6.7±5.7	9
<u>PROLINE-HYDROXYPROL.</u>	19.9±13.8	28.5±22.1	42.0±19.9	52.1±40.3	28.9±20.1	10.6±6.2	9

Normal levels: IGF-1 80-450, TESTOSTERONE 10-41, 17β-ESTRADIOL 30-170, OC 3-20, DPD 3-7, PHP 7-10

N – Number of Patients

DIHYDROTESTOSTERONE, DHT (pmol/l-males only), CORTISOL (nmol/l), tCALCIUM (mmol/l), P T H (pg/ml), iPHOSPHATE (mmol/l), 25OH VIT.D (µg/l), sINTERLEUKIN-2R, sIL-2R (kU/l)

INDICATOR, DAYS AFTER BURN	1	7	14	28	1/2 year	one year	N
<u>D H T</u> (BI 15±2)	418±213	455±351	790±491	1184±672	1195±585	1216±348	10
<u>D H T</u> (BI 33±12)	347±194	274±154	415±345	809±693	1420±746	1902±1484	10
<u>CORTISOL</u> (BI 14±3)	471±208	494±144	448±122	407±164	398±169	475±199	21
<u>CORTISOL</u> (BI 34±14)	445±292	823±936	533±380	333±163	390±102	401±82	14
<u>tCALCIUM</u> (BI 14±3)	2.04±0.47	2.18±0.15	2.21±0.44	2.28±0.46	2.28±0.57	2.38±0.09	23
<u>tCALCIUM</u> (BI 34±15)	2.05±0.13	2.16±0.16	2.17±0.46	2.29±0.42	2.40±0.17	2.29±0.47	26
<u>P T H</u> (BI 14±4)	36±27	23±12	18±9	21±13	38±18	40±28	16
<u>P T H</u> (BI 34±13)	57±65	25±16	20±17	16±13	37±24	45±20	25
<u>i PHOSPHATE</u>	1.21±0.34	1.35±0.20	1.43±0.25	1.37±0.33	1.32±0.53	1.08±0.21	25
<u>25 OH VITAMIN D</u>	16.9±4.1	15.7±4.6	17.4±5.7	17.1±6.3	19.8±6.4	18.1±5.7	10
<u>s (IL - 2) R</u>	930±648	1219±683	1072±448	918±491	635±250	672±143	11

Normal Levels: D H T 900-2800, CORTISOL 50-650, tCALCIUM 2.10-2.70, P T H 8-74,

iPHOSPHATE 0.70-1.65, 25 OH VITAMIN D 10-45, s (IL-2) R 223-710 N – Number of Patients

C-TELOPEPTID, CTX ($\mu\text{g/l}$), N-TELOPEPTID, NTX (nM/mM creat.), ACID PHOSPHATASES, ACP (nkat/l),
D H E A – S ($\mu\text{g/l}$), TRIIODOTHYRONINE, T3 (nmol/l), ALKALINE PHOSPHATASES, ALP ($\mu\text{kat/l}$)

INDICATOR, DAYS AFTER BURN	1	7	14	28	1/2 year	one year	N
C – TELOPEPTID, CTX	1.05±0.84	1.92±0.84	1.78±0.86	1.42±0.73	1.16±0.83	1.04±0.63	13
N – TELOPEPTID, NTX	125±88	185±119	188±132	175±147	110±85	85±42	25
A C P (BI 14±3)	132±64	102±20	96±31	94±41	90±21	91±17	22
A C P (BI 31±13)	116±67	121±74	153±85	134±80	92±25	89±39	26
A L P	1.51±0.86	1.84±0.87	2.15±1.25	1.90±1.06	1.76±0.53	1.60±0.54	31
D H E A – S	7.31±3.76	5.19±3.80	3.79±2.27	5.11±3.87	5.48±3.59	5.92±4.11	16
T 3 (BI 13±3)	1.07±0.38	1.23±0.32	1.36±0.45	1.73±0.52	1.96±0.34	-----	10
T 3 (BI 31±7)	0.91±0.32	1.09±0.42	1.40±0.47	1.90±0.38	1.85±0.38	-----	10

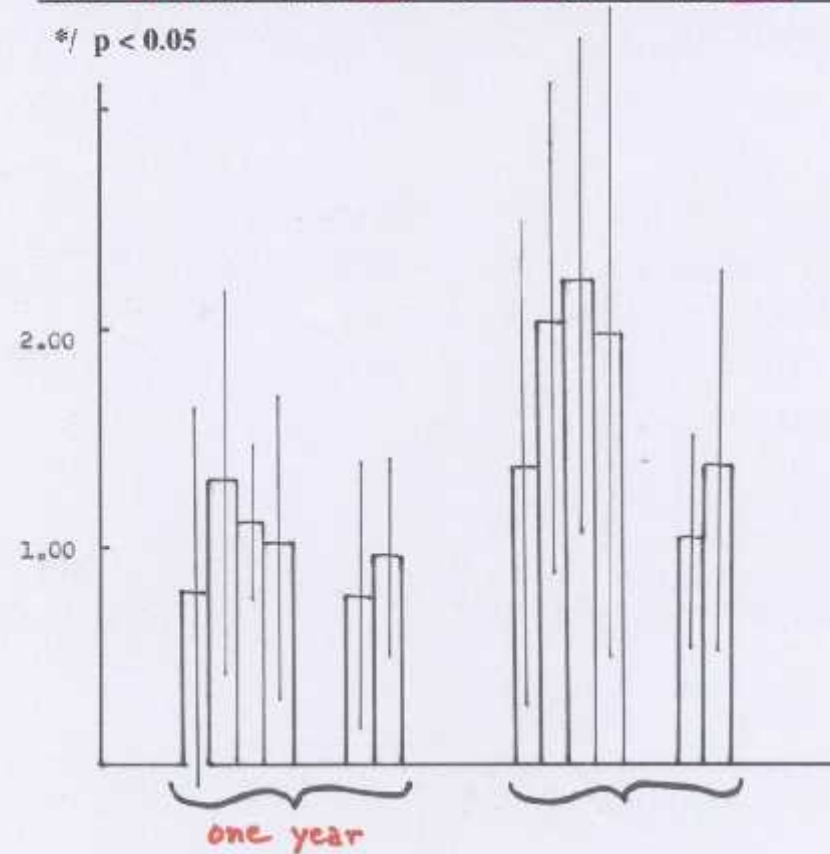
Normal Levels: C-TELOPEPTID 0.250-0.760, N-TELOPEPTID 3 – 73, A C P 0-92, A L P 0.7 – 2.0,
DHEA-S 4.4 – 15.0, TRIIODOTHYRONINE 1.1 – 2.4.

C-TELOPEPTID, CTX in $\mu\text{g/L}$ DAYS 1-7-14-28-(56)-180-365

Normal Levels 0.250 – 0.760

DAYS	BI 14 $\pm$ 3	AGE 39 $\pm$ 19	N	BI 25 $\pm$ 17	AGE 34 $\pm$ 16	N
1	0.79 $\pm$ 0.83	(0.16-2.86)	12	1.33 $\pm$ 1.19	(0.15-3.50)	10
7	1.32 $\pm$ 0.87	(0.50-3.10)	12	2.09 $\pm$ 1.21	(0.48-3.98)	8
14	1.13 $\pm$ 0.66	(0.32-2.43)	13	2.20 $\pm$ 1.34	(0.79-5.34)	11*
28	1.03 $\pm$ 0.59	(0.32-2.12)	13	1.95 $\pm$ 1.50	(0.38-5.92)	11
180	0.78 $\pm$ 0.58	(0.24-2.26)	11	1.02 $\pm$ 0.49	(0.52-1.98)	9
365	0.91 $\pm$ 0.45	(0.31-2.09)	11	1.30 $\pm$ 0.85	0.52-2.95)	9

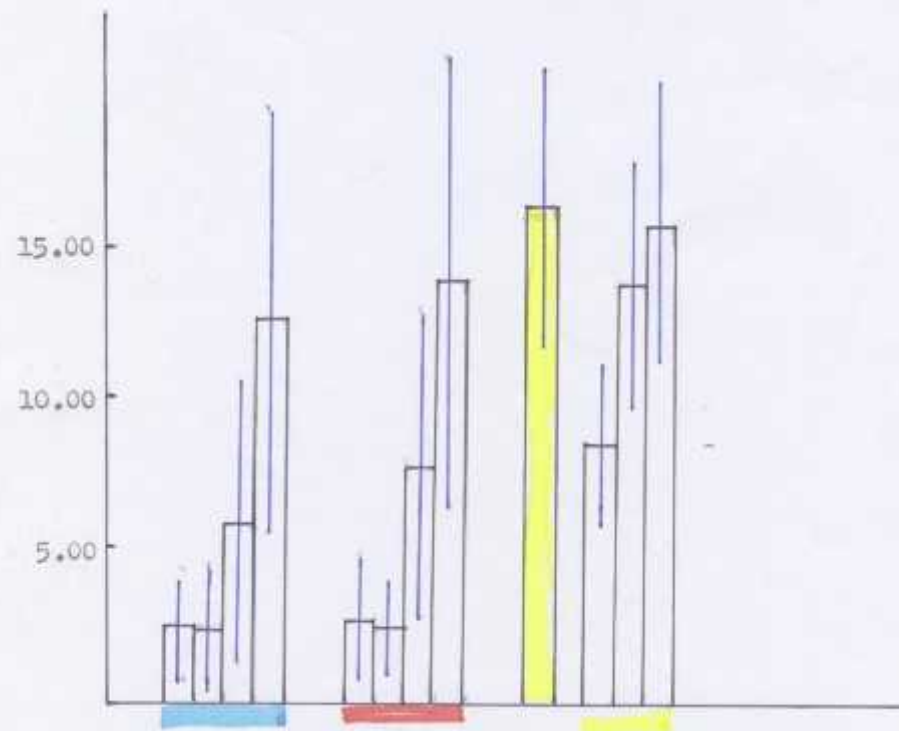
*/ $p < 0.05$



TESTOSTERONE (nmol/l), ONLY ♂ DAYS 1-7-14-28 X±SD
 Normal levels for Males (M) 11 – 42 nmol/l

BURN TRAUMA	POLYTRAUMA	ELECTIVE SURGERY*
2.23 ± 2.17	9.49 ± 4.29	16.40 ± 4.50* *
2.22 ± 1.88	3.95 ± 6.65	8.22 ± 2.78
5.77 ± 4.87	6.24 ± 8.79	13.64 ± 4.19
12.77 ± 7.55 (n=21)	13.77 ± 8.88 (n=23)	15.33 ± 4.77
37±20 yrs, BI 31±15	41±6 yrs ISS 39±9	69±7 yrs n=7

* / Total Hip Replacement (cemented type) ** / before surgery

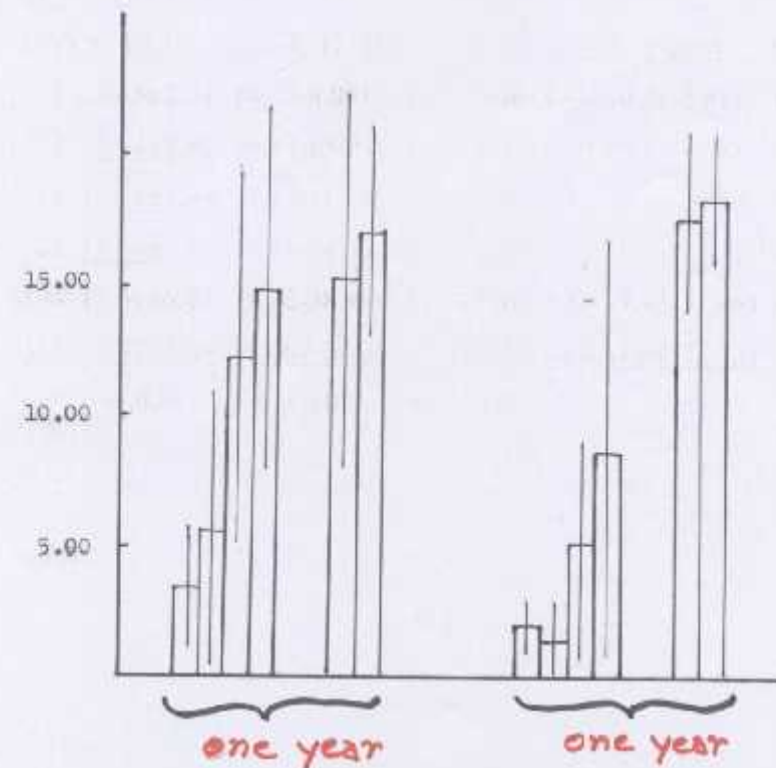


TESTOSTERONE in nmol/L DAYS 1-7-14-28-(56)180-385

MALES ONLY Normal Levels 11 – 42 nmol/L

DAYS	BI 14±3	AGE 47±16	N	BI 34±10	AGE 26±1	N
1	3.43±2.54	(0.73-8.09)	16	2.06±1.06	(0.22-5.51)	18
7	5.64±4.91	(0.93-13.04)	16	1.67±1.50	(0.13-4.88)	18*
14	12.13±7.69	(1.13-41.20)	16	5.15±4.45	(0.10-16.53)	20**
28	15.06±6.75	(1.65-34.40)	14	8.58±8.04	(0.10-19.31)	20°
180	15.39±6.47	(5.22-38.90)	11	17.40±3.38	(7.95-31.46)	15
365	17.47±3.89	(13.62-34.80)	8	18.24±2.64	(1.82-22.42)	12

*/ p < 0.01 **/ p < 0.01 °/ p < 0.05



DIHYDROTESTOSTERONE DAYS 1-7-14-28 X±SD

Normal Dihydrotestosterone (DHT) levels in ♂ 900-2800 pmol/l

BURN TRAUMA **POLYTRAUMA** **ELECTIVE SURGERY***

347 ± 194 762 ± 417 1100 ± 336* *

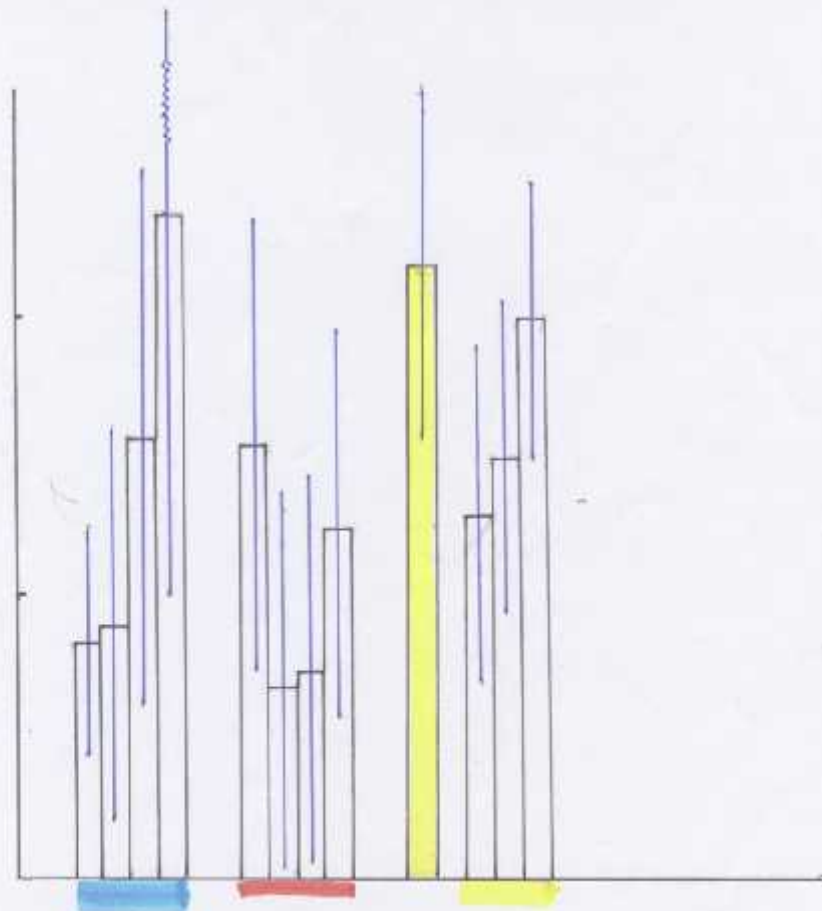
274 ± 157 232 ± 149 624 ± 282

415 ± 345 307 ± 221 744 ± 267

809 ± 693 (n=10) 633 ± 355 (n=20) 986 ± 241

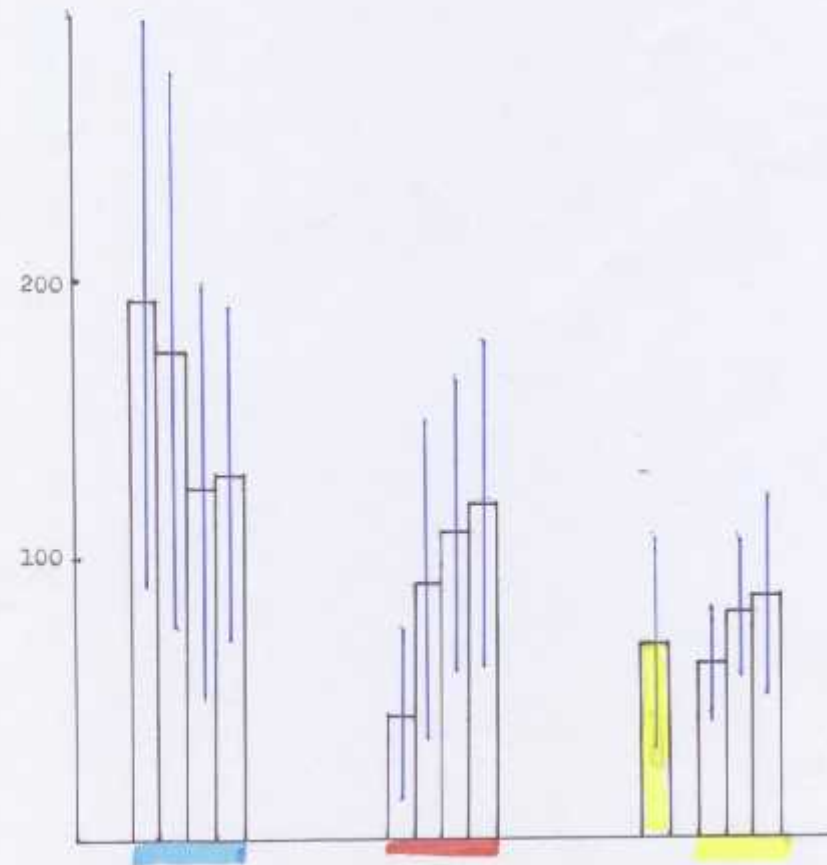
33±12 yrs, BI 32±11 39±6 yrs ISS 39±7 69±7 yrs n=7

*/ Total Hip Replacement (cemented type) **/before surgery



17 β -ESTROGENS (pmol/l), ONLY ♂ DAYS 1-7-14-28 X $\pm$ SD

BURN TRAUMA	POLYTRAUMA	ELECTIVE SURGERY*
194 $\pm$ 114	44 $\pm$ 31	70 $\pm$ 41 * *
175 $\pm$ 104	91 $\pm$ 59	62 $\pm$ 20
125 $\pm$ 78	110 $\pm$ 57	82 $\pm$ 26
130 $\pm$ 60 (n=23)	120 $\pm$ 61 (n=28)	87 $\pm$ 36
35 $\pm$ 14 yrs, BI 28 $\pm$ 14	41 $\pm$ 6 yrs ISS 39 $\pm$ 9	69 $\pm$ 7 yrs n=7
*/ Total Hip Replacement (cemented type) **/before surgery		

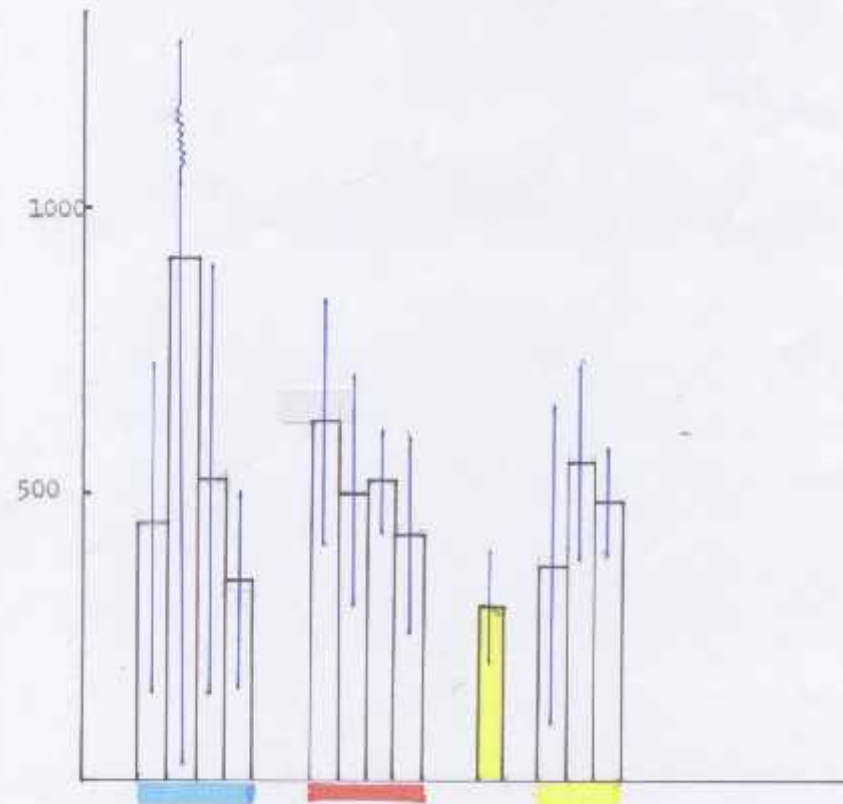


CORTISOL (nmol/l) DAYS 1-7-14-28 X±SD

Normal cortisol levels 100 – 650 nmol/l

BURN TRAUMA	POLYTRAUMA	ELECTIVE SURGERY*
445 ± 292	632 ± 225	290 ± 109* *
823 ± 936	507 ± 211	392 ± 284
533 ± 380	529 ± 101	566 ± 182
333 ± 163 (n=15)	434 ± 182 (n=26)	498 ± 94
37±20 yrs, BI 34±14	41±6 yrs ISS 40±7	71± 6 yrs n=18

* / Total Hip Replacement (cemented type) ** /before surgery



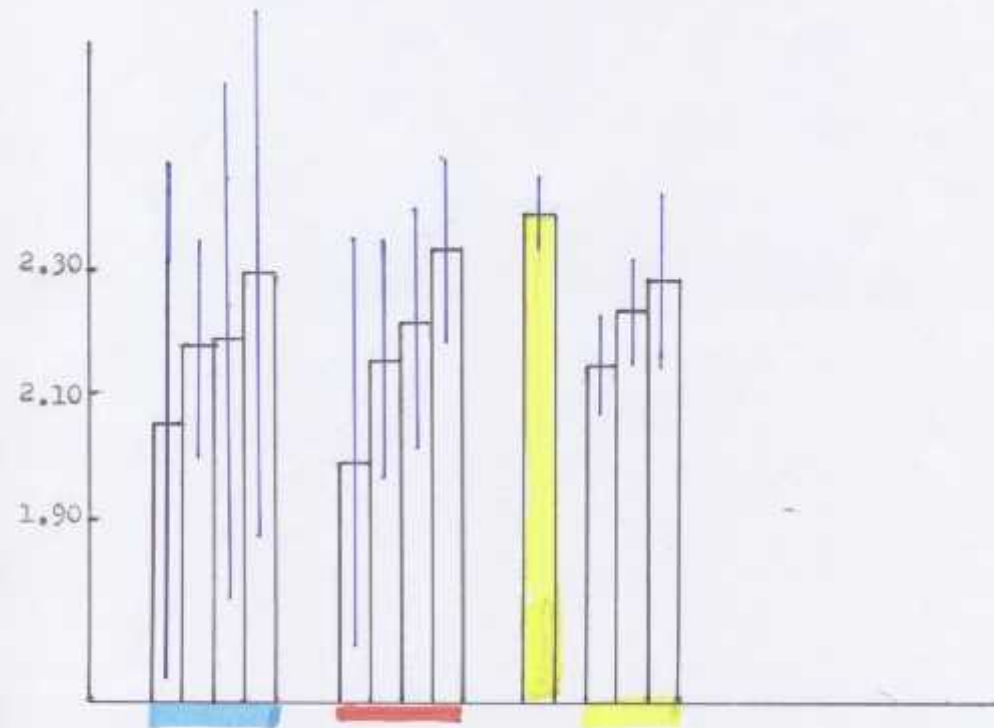
Total CALCIUM (mmol/l) DAYS 1-7-14-28 X±SD

Normal total Calcium (tCa) levels 2.15 – 2.70 mmol/l

BURN TRAUMA	POLYTRAUMA	ELECTIVE SURGERY*
2.05 ± 0.13	1.99 ± 0.07	2.38 ± 0.11* *
2.16 ± 0.14	2.17 ± 0.05	2.14 ± 0.08
2.17 ± 0.46	2.16 ± 0.04	2.22 ± 0.08
2.29 ± 0.42 (n=26)	2.28 ± 0.04 (n=28)	2.25 ± 0.14

37±20 yrs, BI 34±10 41±6 yrs ISS 40±7 71± 6 yrs n=18

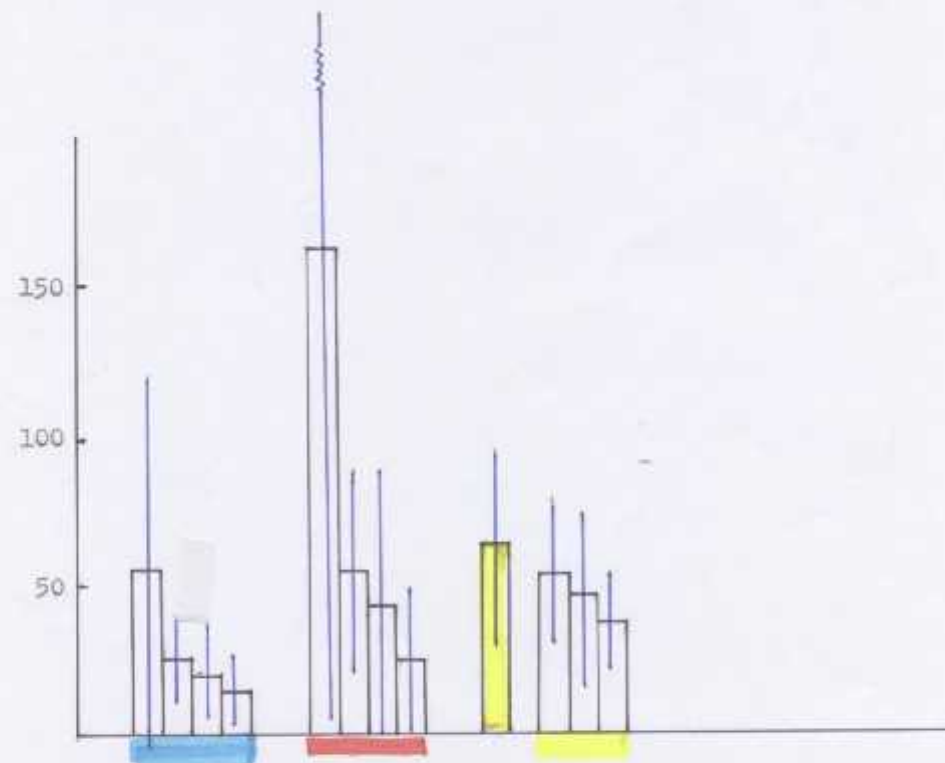
* / Total Hip Replacement (cemented type) ** / before surgery



PARATHYROID HORMONE (pg/ml), DAYS 1-7-14-28 X±SD
 Normal PTH levels 8 – 74 pg/ml

BURN TRAUMA	POLYTRAUMA	ELECTIVE SURGERY*
57 ± 65	172 ± 41	63 ± 34* *
25 ± 16	58 ± 9	54 ± 22
20 ± 17	59 ± 19	48 ± 28
16 ± 13 (n=25)	24 ± 7 (n=23)	39 ± 16
37±20 yrs, BI 31±15	41±6 yrs ISS 39±9	71 ± 6 yrs n=18

*/ Total Hip Replacement (cemented type) **/before surgery



OSTEOCALCIN ($\mu\text{g/l}$) DAYS 1-7-14-28 X $\pm$ SD

Normal Osteocalcin (OC) levels 3 – 13 $\mu\text{g/l}$

BURN TRAUMA **POLYTRAUMA** **ELECTIVE SURGERY***

6.60 $\pm$ 5.97

4.32 $\pm$ 1.42

6.12 $\pm$ 2.28* *

9.06 $\pm$ 5.39

5.62 $\pm$ 1.36

3.39 $\pm$ 2.56

11.41 $\pm$ 8.87

8.21 $\pm$ 2.23

4.92 $\pm$ 2.29

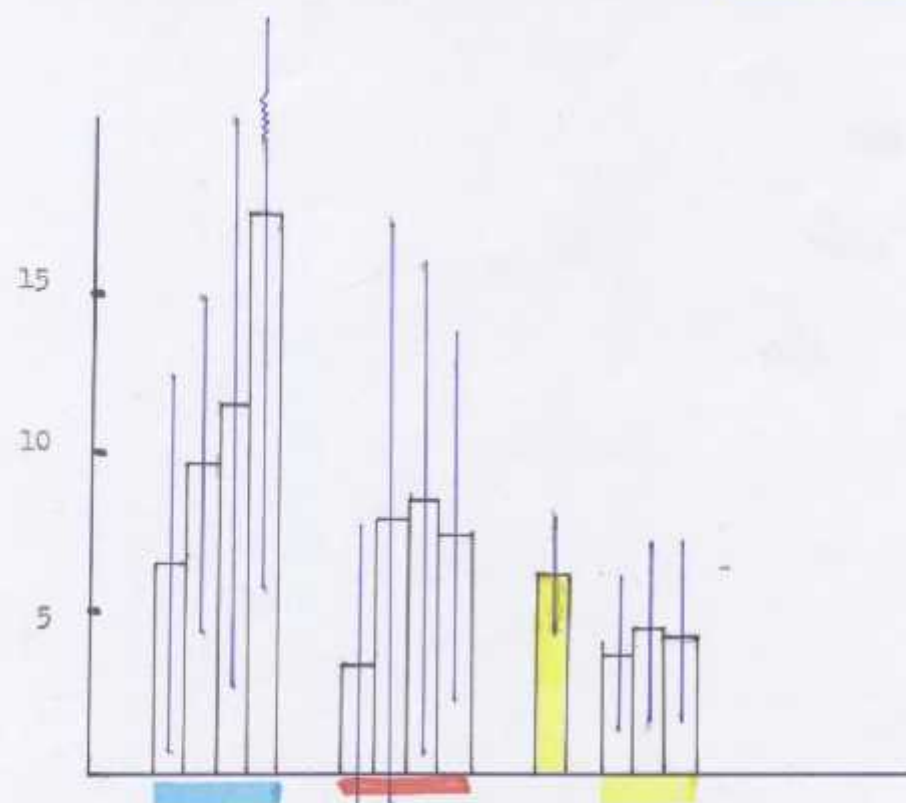
17.61 $\pm$ 12.01 (n=17)

6.90 $\pm$ 1.76 (n=28)

4.54 $\pm$ 2.84

37 $\pm$ 20 yrs, BI 34 $\pm$ 10 41 $\pm$ 6 yrs ISS 40 $\pm$ 7 71 $\pm$ 6 yrs n=18

*/ Total Hip Replacement (cemented type) **/before surgery



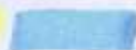
DS, 36yrs, Male, BI 24 (Burn on Aug.22, 2010)

<u>Indicator, Date</u>	Aug.23	Aug.30	Sept.9	Sept.20	Oct.18
sRANKL pmol/l	308	415 ↗	482 ↗	380 ↗	521 ↗
OSTEOPROTEGERIN pmol/l	5.42	30.06 ↗	5.66	3.71	2.97
ADIPONECTIN mg/l	4.21	5.55	4.55	5.99	5.07
LEPTIN ng/ml	12.85 ↗	5.60	8.75	11.07 ↗	8.31
GHRELIN pmol/l	46	147	80	125	86
INTERLEUKIN-6 ng/l	40 ↗	95 ↗	209 ↗	15	13
S IL - 2 R kU/l	904 ↗	3342 ↗	2168 ↗	1724 ↗	1431 ↗
t CALCIUM mmol/l	2.09 ↘	2.15 ↘	2.12 ↘	2.19	2.34
P T H pg/ml	29	< 3 ↘	10	< 3 ↘	< 3 ↘

Increased Levels



Decreased Levels

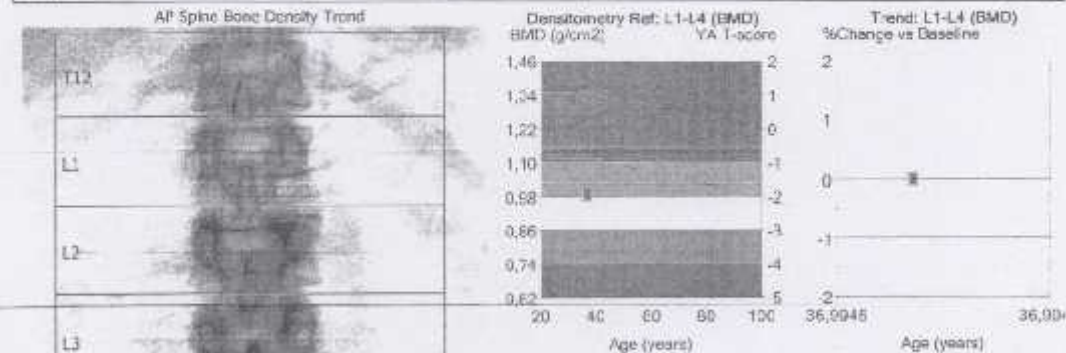


FN Ostrava

RDG ústav - kostní denzitometrie

17. listopadu 1790, 708 52 Ostrava Tel.:597374112

Patient: SIKORA, Dušan Patient ID: 7402245213 **36 YEARS**
 Birth Date: 24.2.1974 36,9 years Referring Physician: STETINSKY
 Height / Weight: 180,0 cm 80,0 kg Measured: 22.2.2011 8:23:49 (13,20)
 Sex / Ethnic: Male White Analyzed: 22.2.2011 8:24:04 (13,20)



Region	¹ BMD (g/cm²)	² Young-Adult (%) T-score	³ Age-Matched (%) Z-score
L1	0,649	73 -2,6	73 -2,7
L2	1,056	85 -1,5	85 -1,6
L3	1,084	87 -1,3	87 -1,4
L4	0,655	77 -2,4	77 -2,4
L1-L2	0,653	79 -2,1	79 -2,1
L1-L3	0,698	83 -1,8	82 -1,8
L1-L4	0,686	81 -1,9	80 -2,0
L2-L3	1,070	86 -1,4	86 -1,5
L2-L4	1,029	83 -1,8	82 -1,8
L3-L4	1,016	82 -1,9	81 -1,9

Measured Date	Age (years)	Trend: L1-L4 BMD (g/cm²)	Change vs Baseline (%)	Change vs Previous (%)
22.2.2011	36,9	0,986	baseline	-

COMMENTS:

Image not for diagnosis

Index: 22.2.2011 8:24:07 (13,20) (100,0,50,00,0,0) 0,00,0,00 0,30x,25
 26,3 %fat=37,4%
 1,02x,00 0,05x,0,00
 Machine: 4gcRH4000mes
 Scan Mode: Standard 146,0 µGy

- 1 - Statistically (8% of repeat scans fall within 1SD ($\pm 0,010$ g/cm² for AP Spine L1-L4)
- 2 - USA (Combined NHANES (ages 20-29) / Lunar (ages 20-40)) AP Spine Reference Population (x112)
- 3 - Matched for Age, Weight (males 25-100 kg), Ethnic
- 4 - Japanese Society for Bone and Mineral Research definition of osteoporosis and osteopenia in Japanese women: Normal = BMD at or above 80% YA; Osteopenia = BMD between 70% & 80% YA; Osteoporosis = BMD below 70% YA (Reference: Diagnostic criteria for primary osteoporosis: year 2000 revision, J Bone Miner Metab (2001) 19:333-337)

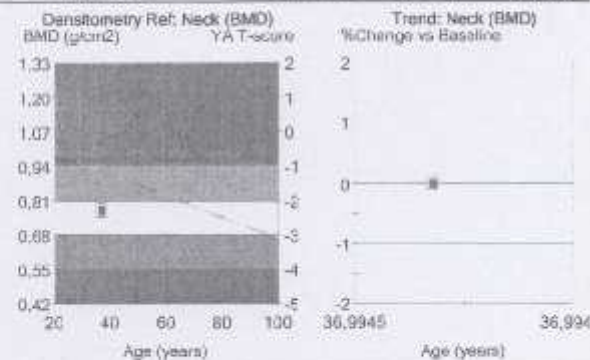
FN Ostrava

RDG ústav - kostní denzitometrie

17. listopadu 1790, 708 52 Ostrava Tel.:597374112

Patient: SIKORA, Dusan
Birth Date: 24.2.1974 35,5 years
Height / Weight: 180,0 cm 80,0 kg
Sex / Ethnic: Male White

Patient ID: 7432245213
Referring Physician: STETINSKY
Measured: 22.2.2011 8:26:05 (13,20)
Analyzed: 22.2.2011 8:26:44 (13,20)



Region	BMD ¹ (g/cm2)	Young-Adult ² (%) T-score	Age-Matched ³ (%) Z-score
Neck	0,771	72 -2,3	74 -2,1
Upper Neck	0,591	65 -2,5	67 -2,3
Lower Neck	0,952	-	-
Wards	0,521	54 -3,1	56 -3,1
Trach	0,674	73 -2,3	73 -2,3
Shaft	1,013	-	-
Total	0,820	74 -2,0	76 -1,8

HAL chart results unavailable

(Left = 128,0 mm)

COMMENTS:

Measured Date	Age (years)	Trend: Neck BMD (g/cm2)	Change vs Baseline (%)	Change vs Previous (%)
22.2.2011	36,5	0,771	baseline	-

Image not for diagnosis

Printed: 22.2.2011 8:26:49 (13,20)100 2,55:50,00:6,0 8,00:12,36 0,30:0,25
10,0:40:25,3%
0,00:0,00 0,00:0,00
Neck Angle (deg): - 30
Filename: 7432245213.mef
Scan Mode: Standard 146,3 µm

- 1 - Statistically 68% of repeat scans fall within 1SD (< 0,014 g/cm2) for Left Femur Neck;
- 2 - USA (Combined NHANES (ages 20-30) / Lunar (ages 20-40)) Femur Reference Population (V112);
- 3 - Matched for Age, Weight (males 25-100 kg), Ethnic;
- 4 - Japanese Society for Bone and Mineral Research definition of osteoporosis and osteopenia in Japanese women; Normal = BMD at or above 80% YA; Osteopenia = BMD between 70% & 80% YA; Osteoporosis = BMD below 70% YA (Reference: Diagnostic criteria for primary osteoporosis: year 2000 revision. J Bone Miner Metab. (2001) 19:331-337).

J.L., 37letá žena, ISS 50 - některé ukazatele (zemřela 18.05.2004)

<u>UKAZATEL</u>	<u>13.08.</u>	<u>20.04.</u>	<u>27.04.</u>	<u>11.05.</u>
Kortizol (nmol/l)	-	<u>762</u>	422	<u>>2000</u>
17β-Estradiol (pmol/l)	-	204	333	<u>886</u>
IL-6 (ng/l)	<u>152</u>	<u>171</u>	<u>766</u>	16
IL-8 (ng/l)	19	<u>127</u>	<u>79</u>	<u>76</u>
IL-10 (ng/l)	<u>98</u>	<u>37</u>	<u>24</u>	<u>50</u>
sIL-2R (kU/l)	520	<u>1774</u>	<u>4765</u>	<u>4508</u>
Kalcium (celk.) (mmol/l)	<u>1,77</u>	2,29	<u>2,06</u>	2,12
Kalcium (ioniz.) (mmol/l)	<u>0,97</u>	<u>0,72</u>	<u>0,99</u>	1,10
Anorgan.fosfor (mmol/l)	<u>2,13</u>	<u>2,19</u>	<u>2,06</u>	<u>3,66</u>
P T H (pg/ml)	<u>376</u>	<u>861</u>	<u>115</u>	<u>91</u>
C T X (nmol/l)	<u>9,46</u>	<u>11,93</u>	<u>20,60</u>	<u>6,71</u>
N T X (nM/mM kreat.)	52	<u>427</u>	-	<u>576</u>
Osteokalcin (μg/l)	<u>< 1,0</u>	<u>< 1,0</u>	4, 4	<u>2,3</u>
A L P (μkat/l)	1,40	0,87	<u>2,40</u>	<u>4,04</u>

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JJ, 78yrs, BI 19, died 38 days after burn t

Days after burn	7	14	21	40
<u>Indicators</u>				
Cortisol (nmol/l)	36	239	232	240
Free Cortisol (nmol/24 hrs)*/	30	212	59	52
Testosterone (nmol/l)	3.86	1.13	0.77	1.29
Dihydrotestosterone (pmol/l)	432	176	138	229
Free Testost.(pmol/l)	7.70	1.40	0.90	2.30
DHEA-S (μmol/l)	0.43	0.22	0.19	0.54
17β-Estradiol (pmol/l)	54	229	160	434
25OH Vitamin D (μg/l)	11.9	7.0	6.1	5.9
P T H (pg/ml)	38	53	31	27
sInterleukin-2R (kU/l)	488	939	1177	4809
Interleukin-6 (ng/l)	9	45	17	227
Interleukin-8 (ng/l)	12	36	35	15
Calcium (total) (mmol/l)	2.10	1.87	1.96	1.80
Calcium (ionized)(mmol/l)	1.07	1.06	1.07	1.04
Phosphate (inorg.) (mmol/l)	1.40	1.31	1.59	1.65
Acid Phosphatases (nkat/l)	233	226	273	319
Alkaline Phosphatases (μkat/l)	1.5	1.7	2.0	2.6
C-telopeptid, CTX (nmol/l)	2.70	4.20	6.00	13.02
P H P (μM/mM creat.)**/	16.5	19.1	19.4	3.6
Osteocalcin (μg/l)	< 1.0	< 1.0	4.4	2.3

*/ in Urine **/ Proline-HydroxyProline

PO ZÁVAŽNÉM POLYTRAUMATU A HLAVNĚ PO ZÁVAŽNÉM

POPÁLENÍ, POSTIŽENÝ JEDINEC ZA ROK JAKO BY NEBYL

UŽ TEN STEJNÝ, TOLIK SE V NĚM MOHLO ZMĚNIT

LÉČEBNÉ MOŽNOSTI

- 1.) Použití **ANABOLIK** (např. nandrolon fenyl propionát) ihned po úrazu (popálení)
- 2.) Ve stejnou dobu podat parenterálně **VITAMIN D**
- 3.) Jsou-li postiženy kosti, podat **KALCITONIN**
- 4.) U závažných popálení nebo traumat, znova uvážit podání **KORTIZOLU** (jeho velmi nízké hodnoty byly opakovaně zjištěny po těžkých popáleních, traumatech)
- 5.) Znova uvažovat o použití „**BLOKUJÍCÍCH SMĚSÍ**“, k utlumení (zablokování) přehnané odezvy po závažném popálení, traumatu

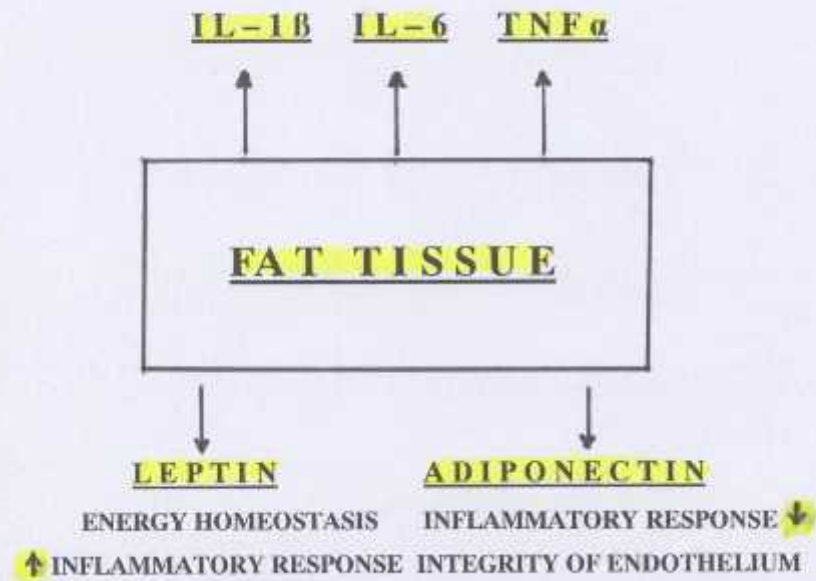
ELEKTIVNÍ CHIRURGIE (ECH) VS. TRAUMA (TRA)

Dny	před	OP/ÚRAZ	5 (7)	10 (14)	VĚK
UKAZATEL					
KORTIZOL (ECH)	290±109	392±284	566±182	498±94	71±6 */
IL - 6	5 ± 4	96 ± 58	12 ± 7	8 ± 6	
KORTIZOL (ECH)	315±170	344±201	452±127	389±156	52±7 **/
IL - 6	3 ± 5	113±82	9 ± 4	5 ± 5	
KORTIZOL (TRA)	---	632±225	507±211	529±101	33±4
IL - 6		202±210	39±49	14±13	

Elektivní Chirurgie – totální náhrada kyčelního kloubu

Trauma ISS 40±6, n=26 (M+F) Kortizol v nmol/l IL-6 v ng/l

*/ cementový typ **/ necementový typ



GHRELIN („HUNGRY HORMONE“)

(„DEPICTS“ THE NUTRITIONAL STATUS)

FOOD INTAKE ↑



STOMACH

OSTEOPROTEGERIN (OPG) v pmol/l, **sRANKL** v pmol/l, **ADIPONEKTIN** v mg/l,
LEPTIN v ng/ml, **GHRELIN (NEACYL.)** v pmol/l PO TRAUMATECH, M + Ž

UKAZATEL

D N Y	1	7	14
O P G	5,13 ± 1,99 (N=16) (2,36 – 8,83)	4,63 ± 1,40 (N=7) (3,19 – 7,09)	3,88 ± 1,27 (N=6) (3,21 – 6,32)
sRANKL	250 ± 167 (N=12) (27-616)	510 ± 213 (N=6) (180-759)	365 ± 203 (N=6) (175-690)
ADIPONEKTIN	5,70 ± 1,98 (N=13) (2,94 – 9,13)	6,96 ± 3,85 (N=7) (3,10 – 13,39)	6,58 ± 1,24 (N=6) (5,17 – 8,18)
GHRELIN (unacyl)	184 ± 128 (N=13) (15 – 437)	284 ± 214 (N=7) (46 – 724)	288 ± 74 (N=6) (212 – 388)
LEPTIN	6,55 ± 3,98 (N=13) (1,69 – 12,74)	10,27 ± 5,39 (N=5) (5,18 – 17,40)	8,00 ± 7,34 (N=5) (1,07 – 18,77)

N=16 VĚK 47 ± 17 ISS ± 11 12M 4 Ž

Norm.hodnoty neacylovaného GHRELINU v plazmě (ELISA) 125±25 pmol/l

KJ, 60yrs, Male, ISS 32 (Polytrauma on Oct.11, 2010)

<u>Indicator, Date</u>	Oct.12	Oct. 18	June 26, 2011
sRANKL pmol/l	1758	1194	278
OSTEOPROTEGERIN pmol/l	5.79	5.80	4,58
ADIPONECTIN mg/l	6.59	13.39	15,38
LEPTIN ng/ml	2.96	---	5,76
GHRELIN (unacyl.) fmol/ml	212	724	169
INTERLEUKIN-6 ng/l	42	26	
SIL – 2 R kU/l	695	1231	
t CALCIUM mmol/l	1.94	2.05	
P T H pg/ml	79	37	
17B – ESTRADIOL pmol/l	65	34	

Increased Levels



Decreased Levels



DRAZÍ PŘÁTELÉ A SPOLUBOJOVNÍCI Z
TRAUMACENTRA, Z POPÁLENINOVÉHO
CENTRA A Z LABORATOŘÍ, MOC DĚKUJI
ZA SPOLUPRÁCI A TĚŠÍM SE DO DALŠÍCH
BOJŮ. A OMLOUVÁM SE, ŽE NĚKDY OTRAVUJI.

Omlouvám se za záplavu informací.
Za půl století se toho strašně moc
nasbírání – a jak si pak vybrat to co je
nejdůležitější?!

DĚKUJI ZA POZORNOST

