

Comparison of vital parameters of employees of intensive cardiac care unit during work and rest – pilot study

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Introduction: Working in emergency and intensive care is one of the most common occupations that face high levels of occupational stress, which has been shown to have a major impact on the development of early cardiovascular disease. Prolonged exposure to stressors at work increases cardiovascular risk (CVR)^{1,2}. The aim of this research is to determine, by measuring vital parameters, whether there is a certain influence of professional stressors on the increase in arterial pressure and pulse and on pathological variations in the electrocardiogram record of health personnel working in intensive cardiac care unit.

Participants and Methods: Observational case control study conducted on adult health professionals aged 18-65 years, both sexes, working in the Intensive Cardiac Care Unit of the Sestre Milosrdnice University Hospital Centre. Duration of the research was 4 months.

Results: In the total sample of 17 respondents, the female gender predominated with a share of 70.6%. The average systolic pressure was 128.47 mmHg (standard deviation, SD 8.70), while the average diastolic pressure was 82.65 mmHg (SD 7.31). There was a trend of increasing pressure during the working night (2.57%, SD 6.01), and a decreasing trend during non-working nights (-12.42%, SD 4.55). By comparing diastolic pressure during working and non-working 24 hours, a statistically significant difference was observed with an average value of 8.18 mmHg (p<0.001) increasing during work. By comparing systolic pressure during working and non-working 24 hours, a statistically significant difference was observed with an average value of 7.18 mmHg (p<0.001) increasing during work. In addition, statistical significance was observed in the average difference in the number of QRS, minimum frequency and pressure changes during the night by comparing working and non-working hours all increasing during work (**Table 1**).

Conclusion: The research proved the adverse impact of professional stressors on the cardiovascular system of intensive cardiac care unit employees, which increases their cardiovascular risk profile in the long term. It would be desirable to conduct a larger multicenter study with a larger number of respondents, including a larger number of doctors, and a longer follow-up time that would confirm the results of this study.

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LITERATURE

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TABLE 1. Comparison of investigated parameters by t test for paired samples.

Paired Samples Test									
Mean		Std. Deviation	Std. Error Mean	Paired Differences			t	df	P
				95% CI of the Difference					
				Lower	Upper				
Pair 1	Mean SBP- work day (mmHg) - Mean SBP-free day (mmHg)	4.11	8.14	1.97	-0.07	8.29	2.08	16	0.054
Pair 2	Mean DBP- work day (mmHg) - Mean DBP-free day (mmHg)	5.31	6.71	1.63	1.86	8.77	3.26	16	0.005
Pair 3	Mean SBP- work night (mmHg) - Mean SBP-free night (mmHg)	10.22	7.79	1.89	6.21	14.22	5.41	16	0.000
Pair 4	Mean DBP- work night (mmHg) - Mean DBP-free night (mmHg)	10.78	5.72	1.39	7.84	13.72	7.78	16	0.000
Pair 5	Mean DBP- working 24h (mmHg) - Mean DBP-free 24h (mmHg)	8.18	4.18	1.01	6.03	10.33	8.07	16	0.000
Pair 6	Mean SBP- working 24h(mmHg) - Mean SBP-free 24h (mmHg)	7.18	5.26	1.28	4.48	9.88	5.63	16	0.000
Pair 7	QRS number work day - QRS number free day	5785.57	8926.99	2385.84	631.28	10939.86	2.42	13	0.031
Pair 8	QRS number work night - QRS number free night	5305.07	7800.63	2084.81	801.12	9809.02	2.54	13	0.024
Pair 9	QRS number 24h work - QRS number 24h free	9499.79	13398.92	3581.01	1763.48	17236.09	2.65	13	0.020
Pair 10	Minimum frequency work day - Minimum frequency free day	6.07	20.53	5.49	-5.78	17.93	1.11	13	0.289
Pair 11	Maximum frequency work day - Maximum frequency free day	6.86	18.76	5.01	-3.98	17.69	1.37	13	0.195
Pair 12	Minimum frequency work night - Minimum frequency free night	7.14	8.65	2.31	2.15	12.13	3.09	13	0.009
Pair 13	Maximum frequency work night - Maximum frequency free night	6.50	17.73	4.74	-3.74	16.74	1.372	13	0.193
Pair 14	Minimum frequency 24h work - Minimum frequency 24h free	7.07	7.25	1.94	2.89	11.26	3.651	13	0.003
Pair 15	Maximum frequency 24h work - Maximum frequency 24h free	-0.29	14.35	3.84	-8.57	8.00	-0.074	13	0.942
Pair 16	VES number work day - VES number work night	2.00	7.04	1.88	-2.06	6.06	1.063	13	0.307
Pair 17	VES number free day - VES number free night	-0.29	0.99	0.27	-0.86	0.29	-1.075	13	0.302
Pair 18	VES number 24 h work day - VES number 24h free day	2.79	7.59	2.03	-1.60	7.17	1.374	13	0.193
Pair 19	SVES number work day - SVES number free day	-0.29	2.23	0.60	-1.58	1.00	-0.479	13	0.640
Pair 20	SVES number work night - SVES number free night	-0.50	1.83	0.49	-1.56	0.56	-1.023	13	0.325
Pair 21	SVES number 24h work - SVES number 24h free	-0.71	3.77	1.01	-2.89	1.46	-0.709	13	0.491
Pair 22	Blood pressure fluctuations during work night (%) - Blood pressure fluctuations during free night (%)	14.99	8.82	2.14	10.45	19.53	7.003	16	0.000

SBP = systolic blood pressure; DBP = diastolic blood pressure; VES = ventricular premature beats; SVES= supraventricular premature beats