

# CORRELATIONS OF INCREASES IN BLOOD PRESSURE (BP) PARAMETERS DURING THE LONG INTERDIALYTIC INTERVAL IN HEMODIALYSIS PATIENTS

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## Backgrounds:

The conventional thrice-weekly hemodialysis schedule includes two regular (about 2 days) and one long (about 3 days) interdialytic interval periods. During the long interval patients have to deal with a larger amount of metabolic products and volume accumulation and recent data suggest that the end of the 3-day period associates with the highest cardiovascular risk. This study analyzed the correlations of increases in BP parameters from day1 to day3 of the interval that were found on a previous study.

## Materials and Methods:

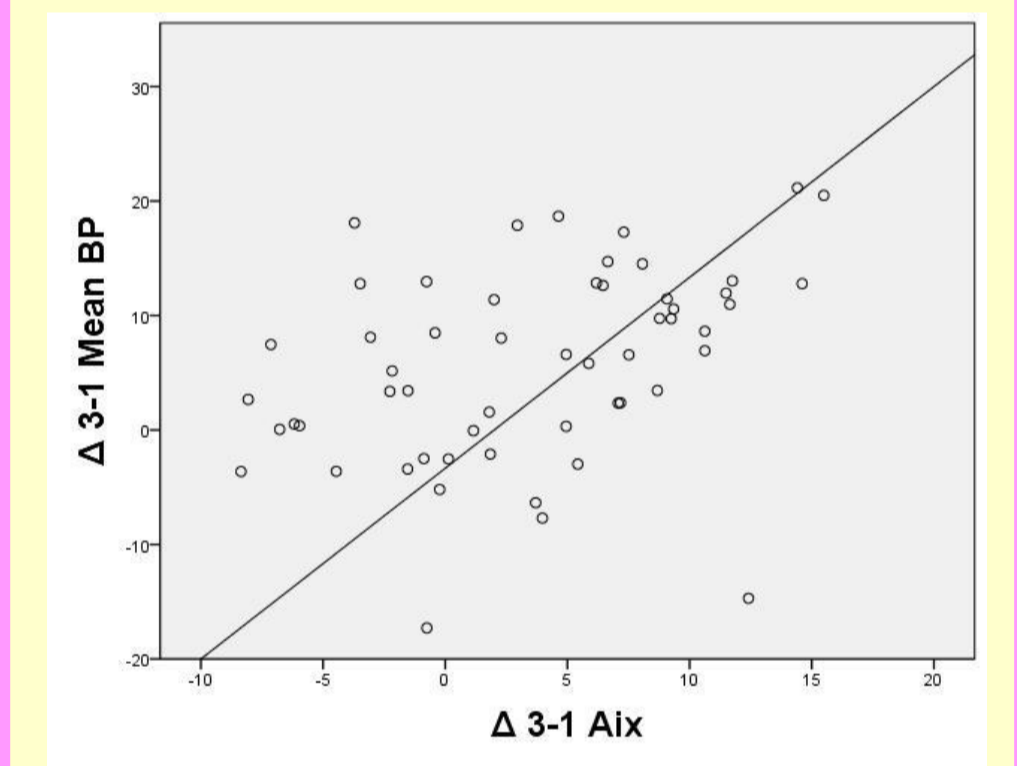
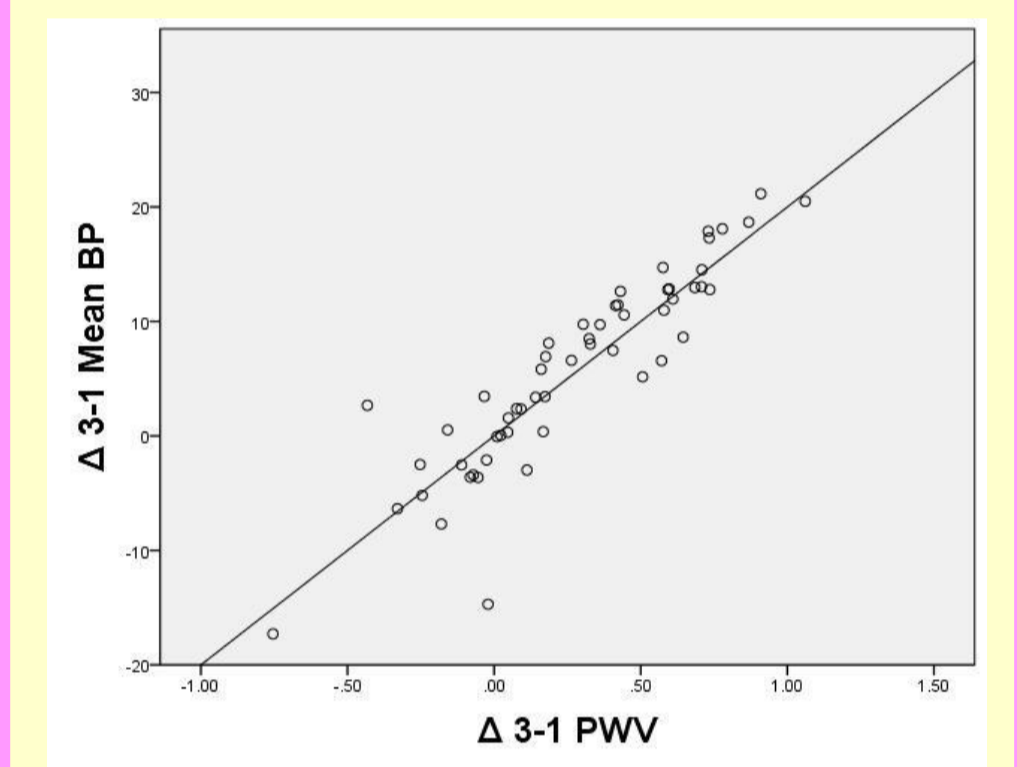
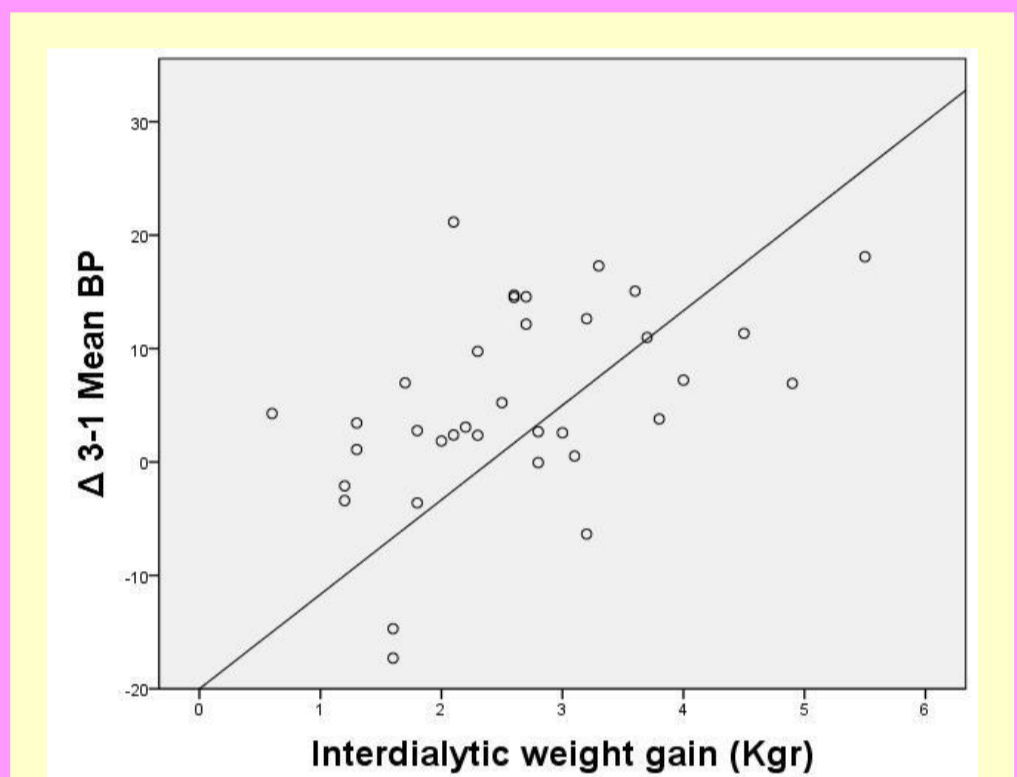
Fifty eight end-stage renal disease patients receiving conventional hemodialysis (mean age 63.2±14.3 years and median time on dialysis 29 months) were included in the study. All underwent a 72-hour Ambulatory Blood Pressure Monitoring covering the large interdialytic interval, with the novel Mobil-O-Graph device (IEM, Stolberg, Germany). Mobil-O-Graph is a novel validated brachial cuff-based automatic oscillometric device that records brachial BP and pulse waveforms and calculates central BP through mathematical transformation that is validated too. We were searching correlations of the differences in BP parameters between day1 and day3.



## Results:

### Correlations

Differences in BP parameters between 3rd and 1st Day	Interdialytic weight gain		Δ 3-1 Heart rate		Δ 3-1 Aix		Δ 3-1 Aix75		Δ 3-1 PWV	
	R	p	R	p	R	p	R	p	R	p
Δ 3-1 Systolic BP	0.388	0.004	-0.330	0.014	0.424	0.001	0.235	0.084	0.950	<0.001
Δ 3-1 Diastolic BP	0.358	0.008	-0.239	0.079	0.283	0.036	0.140	0.307	0.780	<0.001
Δ 3-1 Mean BP	0.386	0.004	-0.300	0.026	0.377	0.005	0.203	0.136	0.911	<0.001
Δ 3-1 pulse pressure	0.318	0.019	-0.334	0.013	0.453	0.001	0.268	0.048	0.870	<0.001
Δ 3-1 aortic Systolic BP	0.351	0.009	-0.335	0.012	0.482	<0.001	0.283	0.036	0.976	<0.001
Δ 3-1 aortic Diastolic BP	0.365	0.007	-0.217	0.112	0.262	0.054	0.130	0.343	0.796	<0.001
Δ 3-1 aortic pulse pressure	0.188	0.173	-0.319	0.018	0.518	<0.001	0.331	0.014	0.764	<0.001
Δ 3-1 Heart rate	-0.369	0.006	-	-	-0.309	0.022	0.252	0.064	-0.371	0.005



### Final stepwise regression for differences in Mean BP between 3<sup>rd</sup> and 1<sup>st</sup> Day

Model	Unstandardized Coefficients		Standardized Coefficients	p	95.0% Confidence Interval for B	
	B	Std. Error			Lower Bound	Upper Bound
(Constant)	-13.37	9.801		0.179	-33.099	6.36
Age (years)	0.122	0.088	0.196	0.173	-0.055	0.299
Gender (M/F)	-0.683	2.286	-0.041	0.766	-5.285	3.919
Time on Dialysis (months)	0.023	0.03	0.104	0.447	-0.038	0.084
Dry Weight (kg)	0.076	0.079	0.128	0.341	-0.083	0.235
Interdialytic weight gain (Kgr)	2.857	1.163	0.359	0.018	0.517	5.197
Δ 3-1 Heart Rate	-0.231	0.176	-0.179	0.197	-0.586	0.124

### Final stepwise regression for differences in pulse pressure between 3<sup>rd</sup> and 1<sup>st</sup> Day

Model	Unstandardized Coefficients		Standardized Coefficients	p	95.0% Confidence Interval for B	
	B	Std. Error			Lower Bound	Upper Bound
(Constant)	3.132	5.638		0.581	-8.217	14.481
Age (years)	-0.038	0.050	-0.078	0.450	-0.138	0.062
Gender (M/F)	1.577	1.312	0.121	0.236	-1.065	4.219
Time on Dialysis (months)	-0.029	0.017	-0.168	0.102	-0.064	0.006
Dry Weight (kg)	-0.031	0.046	-0.066	0.505	-0.122	0.061
Interdialytic weight gain (Kgr)	-0.015	0.691	-0.002	0.982	-1.406	1.375
Δ 3-1 Mean BP	0.575	0.079	0.741	<0.001	0.416	0.733
Δ 3-1 Heart Rate	-0.160	0.102	-0.160	0.124	-0.366	0.045

### Final stepwise regression for differences in aortic pulse pressure between 3<sup>rd</sup> and 1<sup>st</sup> Day

Model	Unstandardized Coefficients		Standardized Coefficients	p	95.0% Confidence Interval for B	
	B	Std. Error			Lower Bound	Upper Bound
(Constant)	1.409	7.179		0.845	-13.042	15.860
Age (years)	-0.018	0.063	-0.038	0.777	-0.146	0.109
Gender (M/F)	2.602	1.671	0.202	0.126	-0.762	5.966
Time on Dialysis (months)	-0.030	0.022	-0.175	0.185	-0.074	0.015
Dry Weight (kg)	-0.008	0.058	-0.017	0.898	-0.124	0.109
Interdialytic weight gain (Kgr)	-0.468	0.880	-0.077	0.598	-2.238	1.303
Δ 3-1 Mean BP	0.373	0.100	0.489	0.001	0.171	0.575
Δ 3-1 Heart Rate	-0.255	0.130	-0.259	0.056	-0.517	0.007

## Conclusions:

Increases in BP parameters that were described during the long 3day interdialytic interval in hemodialysis patients seems to correlate significantly with the interdialytic weight gain.

