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- Title:** Diabetic Patients with Heart Failure Have Great Derangement of Cardiac Autonomic Function as Assessed by Heart Rate Variability Parameters
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Both diabetes and CHF have been associated with decreased heart rate variability (HRV), reflecting pathological alterations in cardiac autonomic function in both conditions. It is unclear whether the cardiac autonomic deficits of diabetes and CHF are cumulative. Therefore, we compared 24-hr HRV in diabetic (N=79) and non-diabetic (N=75) patients entered into a HF drug treatment evaluation study. Entry criteria included: stable class II or III CHF, treated with ACE-I or ARB, LVEF $\geq$ 40 and BNP $\leq$ 200. Traditional HRV, non-linear HRV and heart rate turbulence were determined before randomization and compared via t-tests. Results: Diabetics were younger ( $62 \pm 10$  yrs vs.  $66 \pm 14$  yrs,  $p=0.04$ ). Although LVEF was not different between groups ( $29.3 \pm 8.8\%$  in non-diabetics vs.  $30.8 \pm 8.0\%$  in diabetics,  $p=0.3$ ), diabetics had evidence of greater diastolic function abnormalities as assessed by echo/Doppler parameters. Time domain, frequency domain and non-linear HRV indices were significantly more abnormal in diabetics compared to non-diabetics, suggesting both decreased HRV and increased randomness of HR patterns in diabetics. Turbulence slope was also significantly lower, suggesting impaired baroreflex function in diabetics. Representative data are shown in the table below:

	Non-Diabetics (N=79)	Diabetics (N=75)	p-value
SDNN (ms)	104 $\pm$ 40	88 $\pm$ 41	0.012
Ln Very Low Frequency Power	6.7 $\pm$ 0.9	6.1 $\pm$ 1.2	0.001
Ln Low Frequency Power	5.2 $\pm$ 1.1	4.7 $\pm$ 1.3	0.013
Short-term fractal scaling exponent	0.97 $\pm$ 0.20	0.89 $\pm$ 0.20	0.016
Turbulence slope	3.2 $\pm$ 3.3	1.8 $\pm$ 2.7	0.007

**Conclusion:** Results are consistent with severe further derangement of autonomic function among CHF patients with concomitant diabetes.

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