Assessment of blood pressure and heart rate variability in Multiple Sclerosis
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Introduction
- Reported cardiovascular autonomic dysfunction prevalence in Multiple Sclerosis (MS) varies between studies.
- As cardiovascular autonomic dysfunction lowers quality of life and may contribute to sudden death in MS, early cardiovascular autonomic dysfunction detection may assist treatment and risk identification.

Methods
- 23 MS patients and age and gender matched controls (38±12 years, 15 female) were studied.
- Continuous electrocardiogram and finger blood pressure were non-invasively acquired during 5 minutes supine rest.
- Heart rate variability (HRV) and systolic blood pressure variability (SBPV) quantified in the low frequency (LF: 0.04-0.15 Hz) and high frequency (HF: 0.15-0.5 Hz) ranges.
- Baroreceptor sensitivity (BRS) was quantified through sequence and coherence (α-LF & α-HF) analysis (Figure 1).

Results
- HRV did not differ between the groups.

Figure 2. BRS in the high frequency band was lower in MS than control (22±13 and 39±25 ms/mmHg, p=0.007).

Figure 3. Normalised low frequency SBPV in the LF range was lower in MS subjects. Normalised high frequency SBPV in the HF range was greater in MS subjects.

Conclusions
- Differences in HF SBPV suggest differences in respiratory feedback.
- Differences in LF SBPV indicate differences in baroreceptor and/or chemoreceptor cardiovascular control.
- Difference in HF BRS indicates less BRS control in MS subjects.
- MS subjects have altered degree of cardiovascular autonomic control to healthy subjects and the effect of the respiratory pathway warrants further investigation.