



INTRA DIALYTIC HYPOTENSION: CHARACTERISTICS OF PATIENTS MOST AT RISK AND POTENTIAL PREVENTATIVE STRATEGIES

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Background – Hypertension, Hypervolaemia, and Intra Dialytic Hypotension

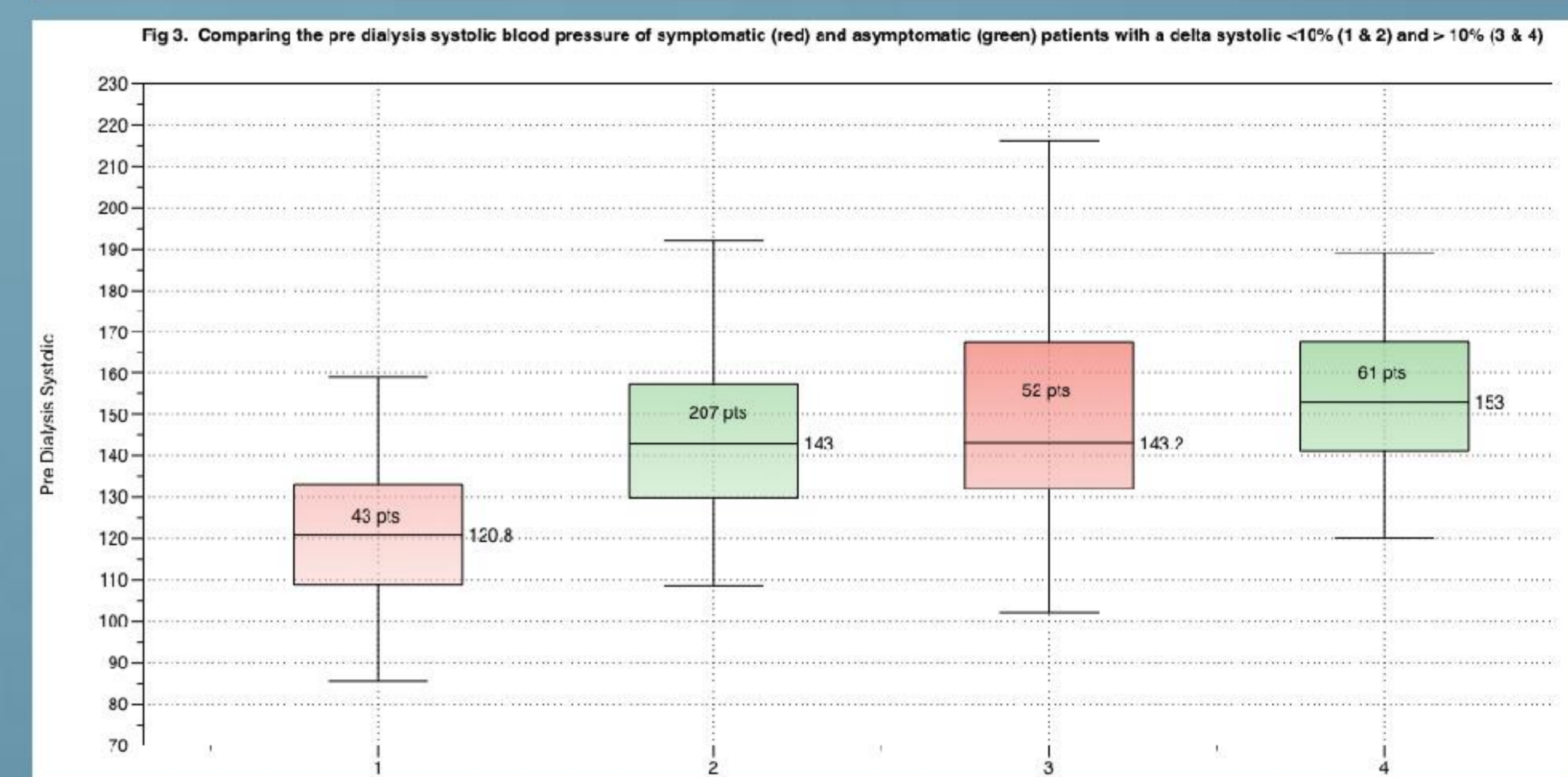
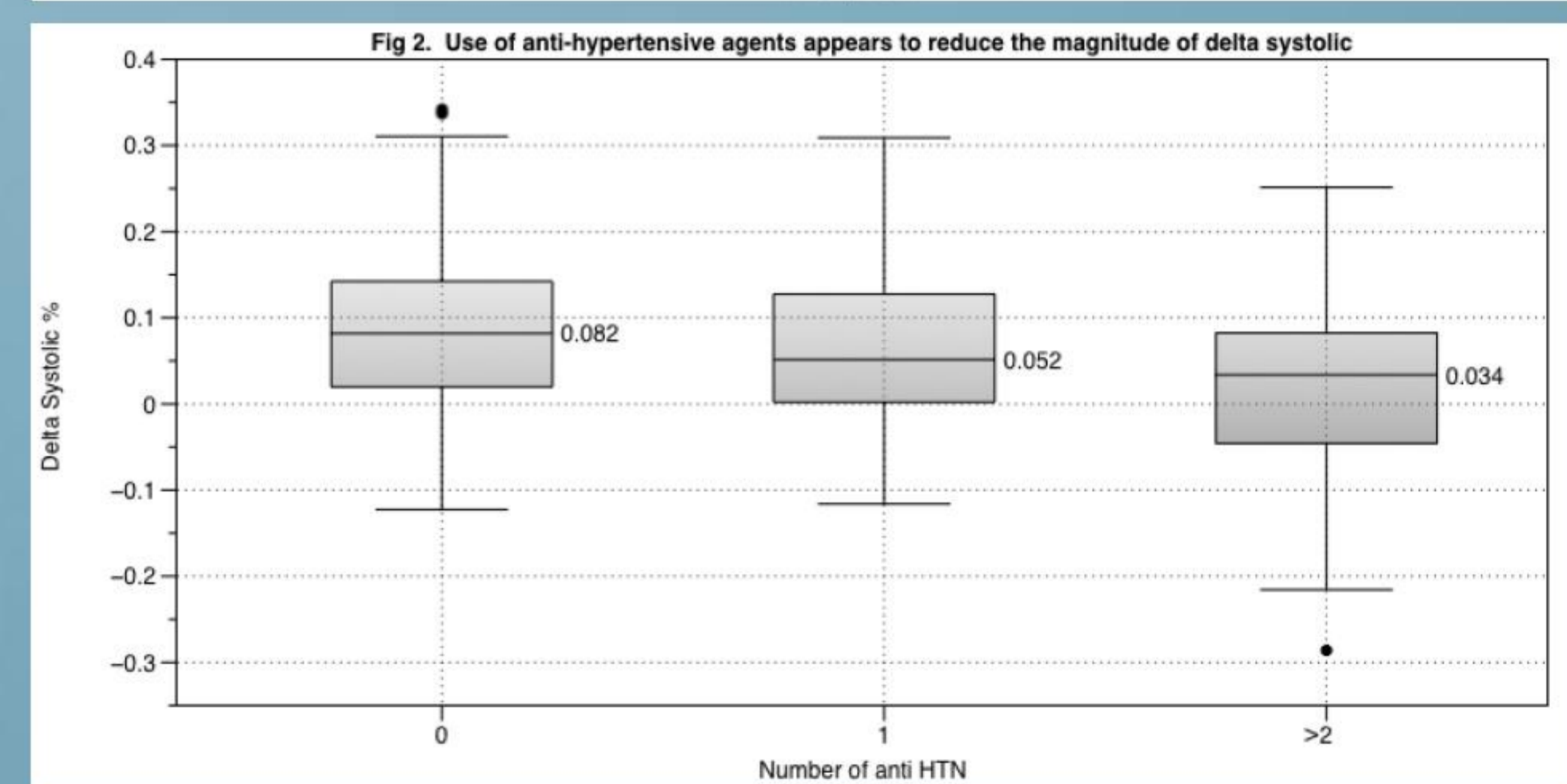
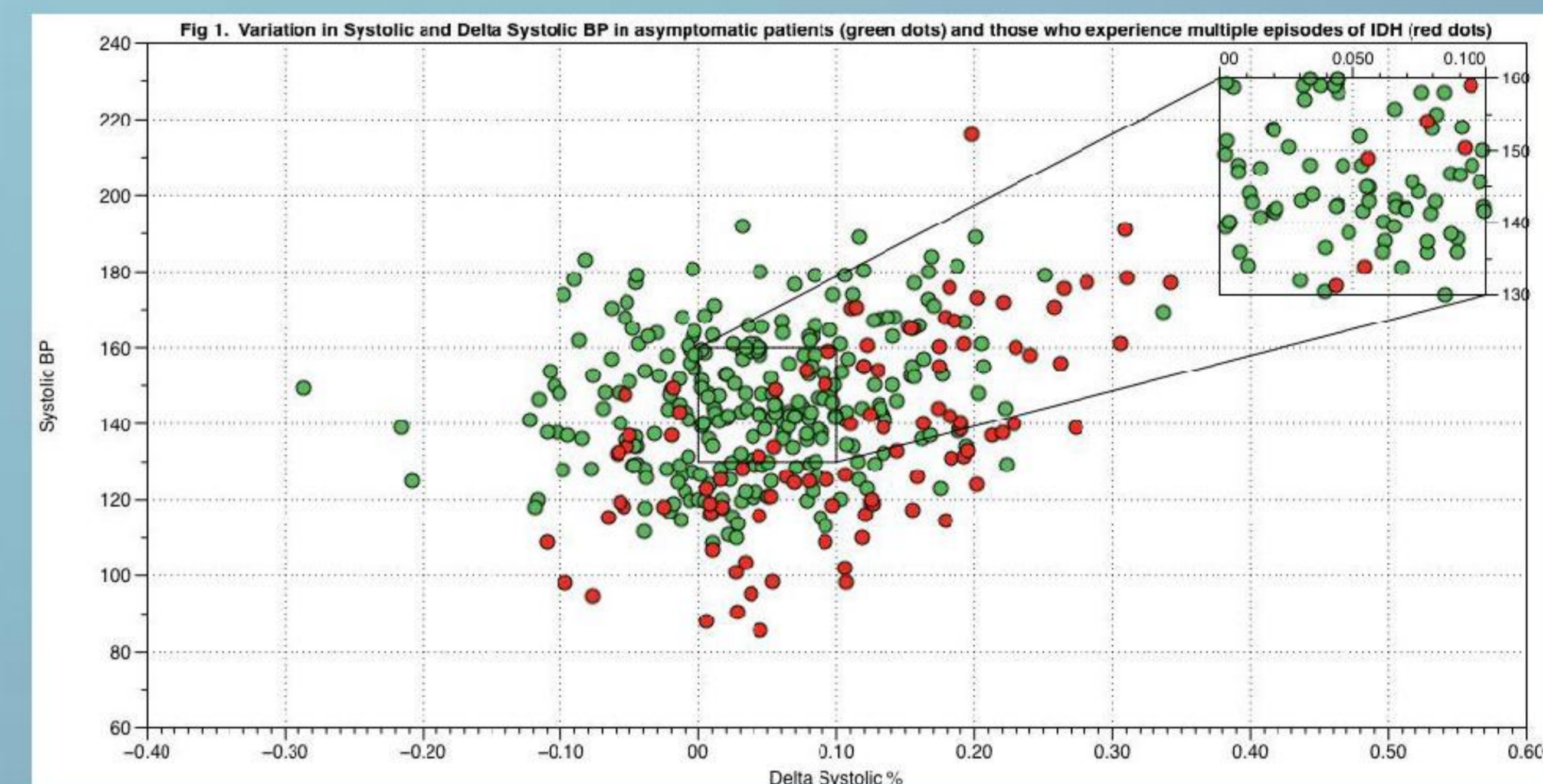
- ESRD is associated with increased Cardiovascular risk
- Controlling hypertension is thought to reduce this risk
- Hypervolaemia is a key contributor to hypertension
- Renal Association recommends ultrafiltration as the first line treatment of hypertension in haemodialysis patients
- **Intra Dialytic Hypotension (IDH):** ‘An acute symptomatic fall in blood pressure during dialysis requiring immediate intervention to prevent syncope’
 - Most common symptomatic complication of HDx
 - Complicates between 7-15% of all HDx Sessions
 - An independent risk factor for mortality

Methods – Retrospective Observational Study

- All patients undergoing 21 consecutive HDx sessions after January 1st 2014 in their usual centre were included; episodes of IDH, pre and post dialysis blood pressure, pre and post dialysis weight, comorbidities, and anti hypertensive medication were recorded.
- Average **delta systolic** was calculated: $\text{Delta Systolic} = \text{Pre dialysis systolic pressure} - \text{Post dialysis systolic pressure}$
- Average **delta systolic%** calculated: $\text{Delta Systolic \%} = (\text{Delta Systolic} / \text{Pre dialysis systolic}) \times 100$

Results

- 433 patients underwent 21 consecutive HDx sessions in their usual center
 - A total of 9093 dialysis sessions of which 438 were complicated by episodes of IDH (4.8%)
 - 266/433 patients experienced no episodes of IDH
 - 70/433 experienced a single episode of IDH
 - 97/433 experienced 2 or more episodes of IDH
- Patients who experienced multiple episodes:
 - Had significantly lower pre dialysis systolic blood pressure (136mmHg vs 146mmHg $p < 0.0001$, Fig 1)
 - Had significantly higher delta systolic (10.88% vs. 4.09% $p < 0.0001$, Fig 1)
- Patients taking more than one anti-hypertensive:
 - Had a lower delta systolic than those on either a single or no anti-hypertensives (2.25% vs. 6.59% vs. 8.22% $p < 0.0001$, Fig 2)
 - Experienced fewer episodes of IDH
- Patients with a delta systolic $< 10\%$ were less likely to experience episodes of IDH during dialysis (Fig 3) than those with a delta systolic $> 10\%$



Conclusions

1. Patients with a delta systolic $> 10\%$ are more likely to experience IDH during dialysis than those with a delta systolic $< 10\%$
2. Anti hypertensive use alongside ultrafiltration to control blood pressure is associated with a lower delta systolic and less episodes of IDH
3. Incorporating delta systolic measurements into routine clinical assessment of dialysis patients can identify those most at risk of IDH

If it is possible to modify delta systolic by adjusting target weight and antihypertensive use, it may be possible to reduce episodes of IDH, and therefore improve both the morbidity and mortality of dialysis patients.