

# ADEQUACY OF CONVECTIVE VOLUME DELIVERED BY CONTROL SYSTEM “AUTOSUB” (5008, FRESENIUS®) AND “ULTRACONTROL” (Evosys, HOSPAL®) WITH THE VOLUME OF 23,7 LITRES SUGGESTED BY THE ESHOL STUDY.



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## Introduction

- The recent results provided by ESHOL<sup>(1)</sup> study suggests a **beneficial effect of a large Convective Volume (CV) (23,7 Litres) to reduce mortality of patients treated by Postdilution On-Line Haemodiafiltration (post OL-HDF)**. These results are consistent with post-hoc analysis of previous studies (The CONTRAST study and The TURKISH Study).
- Reaching large CV expose to an increase in Transmembrane Pressure (TMP) alarms, haemoconcentration and coagulation. To optimize CV without triggering off alarms, automatic control systems have been developed. The two main control systems, called “Autosub” (Fresenius®) and “Ultracontrol” (Hospal®), showed good results when compared to manual control. They have never been compared each other.
- We compared 2 systems “Autosub” (Monitor 5008, Fresenius®) and “Ultracontrol” (Monitor Evosys, Hospal®) to assume large CV.**

(1) F Maduell et al. J Am Soc Nephrol. High-Efficiency Postdilution Online Hemodiafiltration Reduces All-Cause Mortality in Hemodialysis Patients

## Material and Methods

- Monocentric observational non-blinded study conducted on patients treated by OL-HDF for more than 2 months.
- The allocation of the 2 different control systems “Autosub” (5008, Fresenius®) or “Ultracontrol” (Evosys, Hospal®) was aleatory. Patients were treated with the 2 different control systems during the study.
- High-Flux dialyser used was “FX100” (Fresenius®).
- The primary outcome was the percentage of dialysis session achieving CV more than 23,7 in the 2 systems**

## Résultats

### Sessions and patients

Between November 2013 and April 2014, **32 patients** were included, corresponding to 296 HDF sessions :

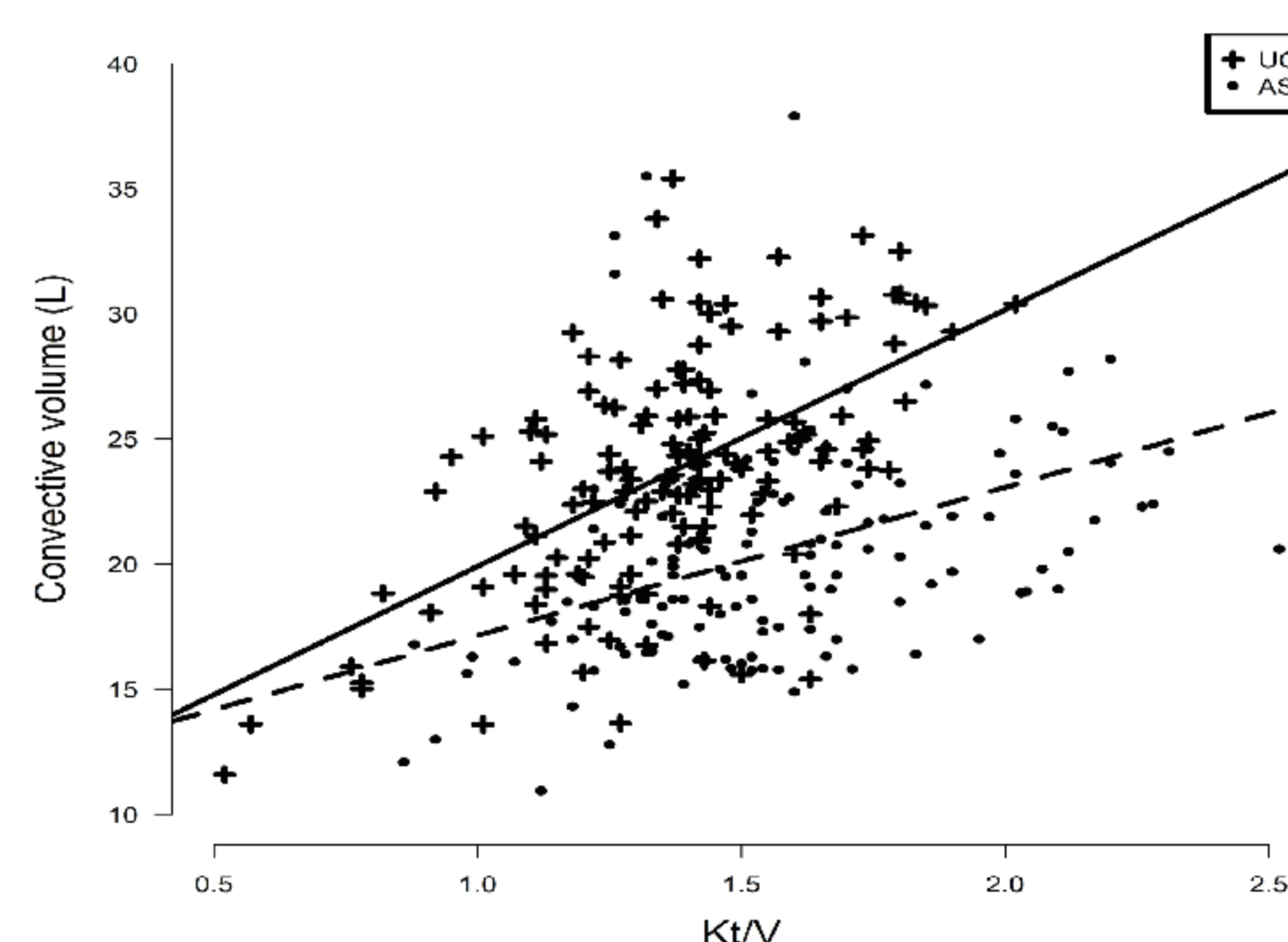
**142 « Autosub » sessions**  
**154 « Ultracontrol » sessions**

**Table 1: Sessions and patients characteristics.**

Age (years)	67 ± 15
Male (%)	20 (63)
Catheters (%)	19 (59)
Time (min)	234 ± 19
Blood Flow Rate (ml/min)	320 ± 36
Dialysate Flow Rate 5008 (ml/min)	500
Dialysate Flow Rate Evosys (ml/min)	600
Kt/V	1.47 ± 0,31

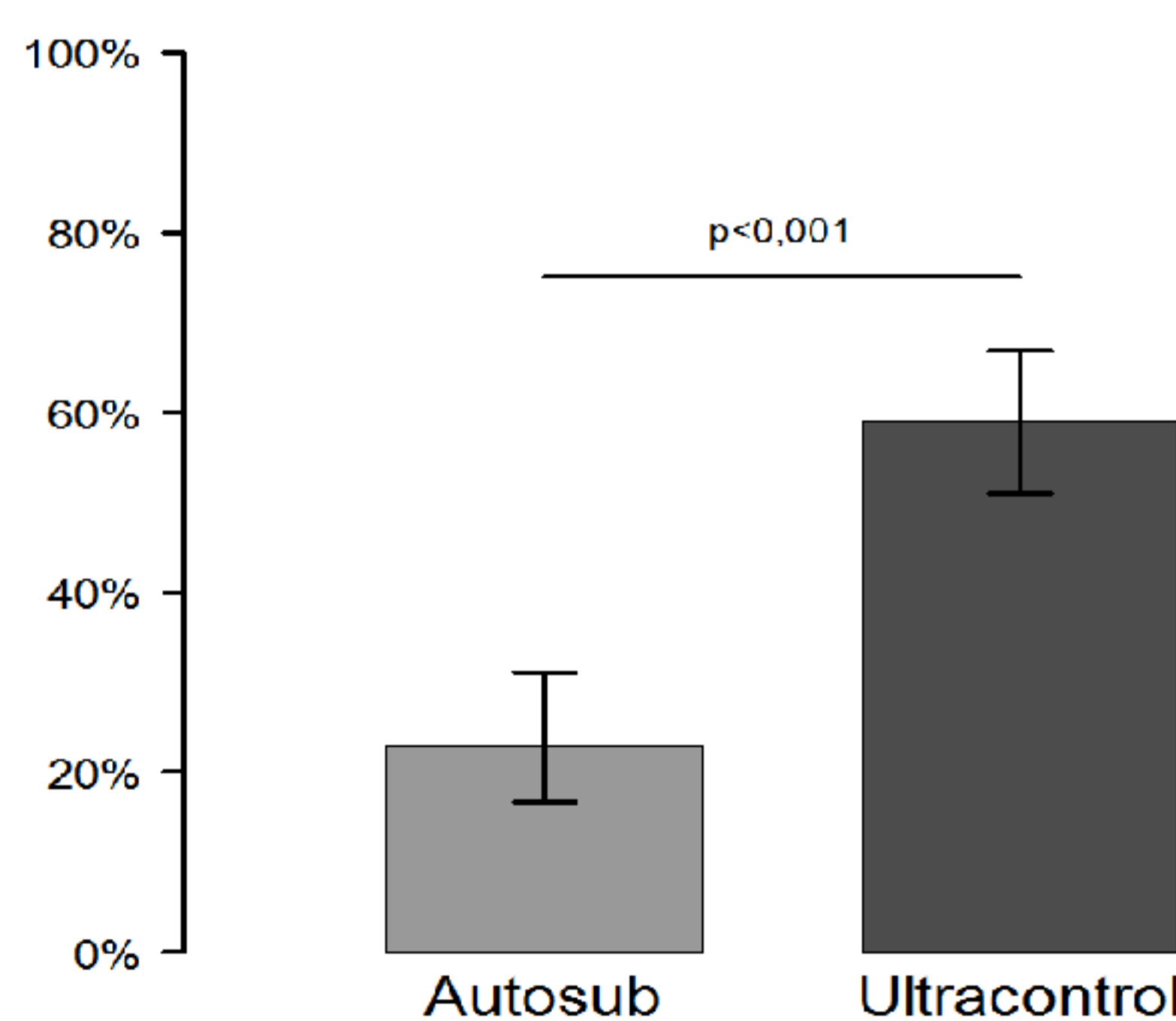
Results expressed as Mean ± SD or n (%)

**Figure 3 : CV according to control system after Kt/V correction.**

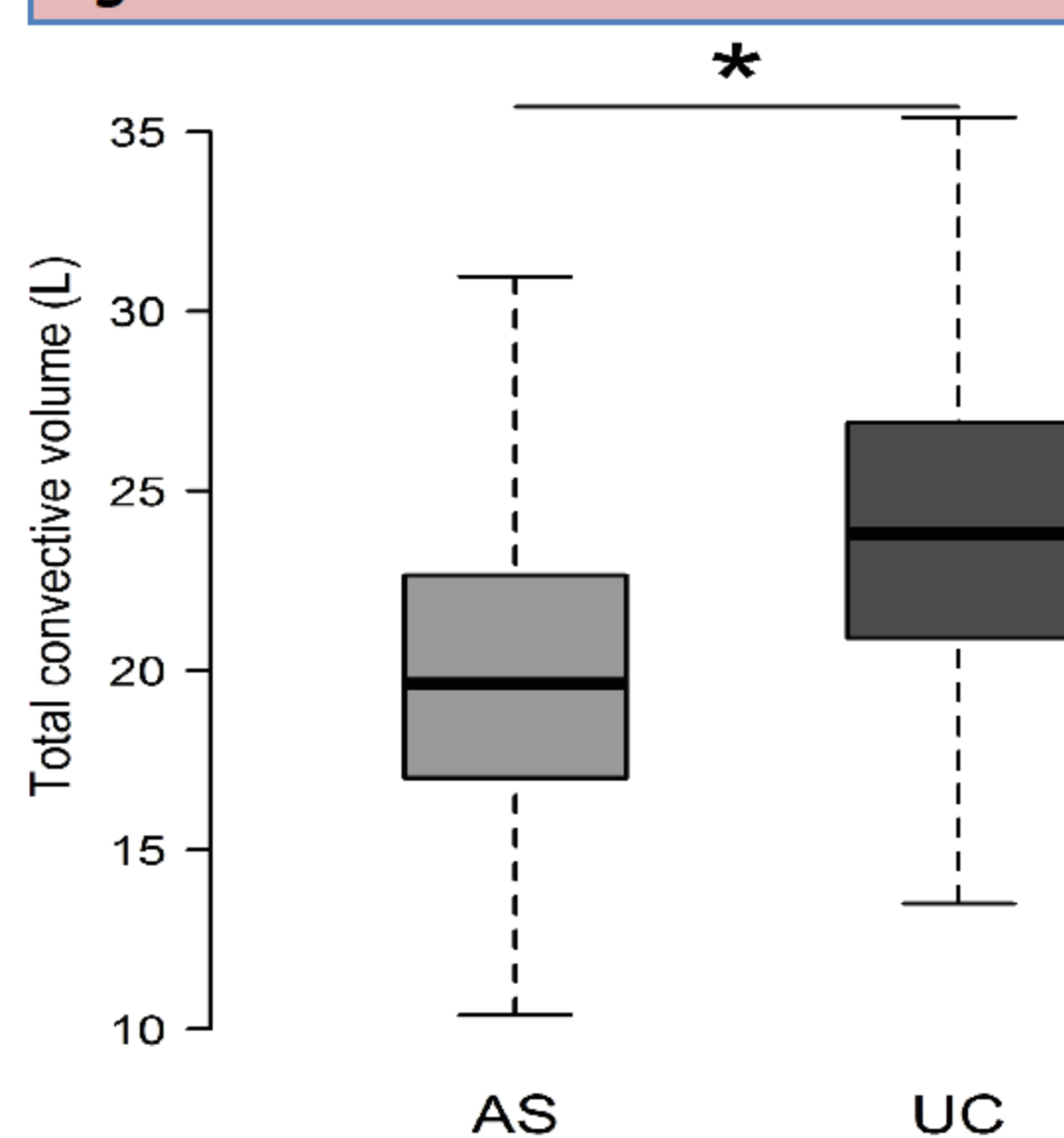


### Convective Volume

**Figure 1: Percentage of dialysis session achieving CV more than 23,7 L.**



**Figure 2: Mean convective Volume.**



### Multivariate analysis

**Table 2: Univariate and Multivariate analysis to predict CV more than 23,7 Litres.**

	Univariate		Adjusted on Kt/V	
	Coefficient	p	Coefficient	p
UC/AS (Litres)	1,92	< 0.001	3,65	< 0.001

## Discussion and Conclusion

- Although it is the first study comparing these two systems in obtaining of high convective volume, this work has several limitations :
  - Retrospective study without randomisation
  - No comparison with the new control system from Fresenius®, called “Autosub+”
- Compared to “Autosub” control system (Fresenius®), “Ultracontrol” control system (Hospal®) provides larger Convective Volume as suggested by ESHOL Study.**

