

# Online Clearance Monitoring (Ocm Kt/v) Vs. Monthly Laboratory Kt/v Measurement In Pediatric Hemodialysis Patients

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## Background

In clinical practice, a monthly blood sample is drawn (pre and post HD treatment, and Kt/V is calculated) to assess for treatment adequacy. Advanced technologies are now allowing us to assess HD treatment adequacy using online clearance monitoring (OCM) without the need to draw blood from our pediatric patients and to minimize human sampling error effect.

## Objectives

To examine the relationship between calculated (laboratory) Kt/V and measured OCM Kt/V in pediatric hemodialysis patients.

## Methodes

This is a 6 month retrospective study; all patients received their HDF treatments using Fresenius Cordiax 5008 with online-HDF and OCM. Urea Volume was assessed via bio-impedance using Fresenius body composition monitor. Monthly calculated Kt/V (Daugirdas) was compared to 1) OCM measured Kt/V on the same day of monthly Labs, 2) OCM Kt/V average for the month, 3) OCM Kt/V average for the week before and after lab Kt/V.

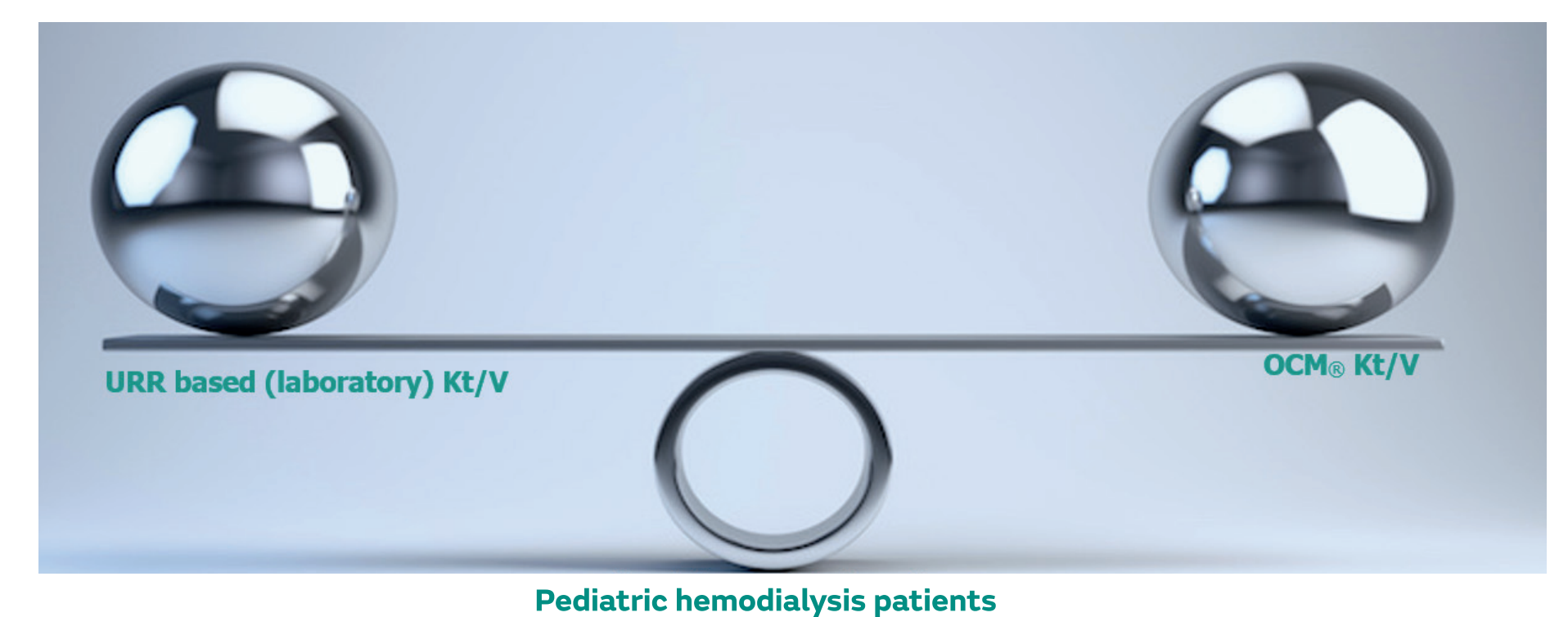
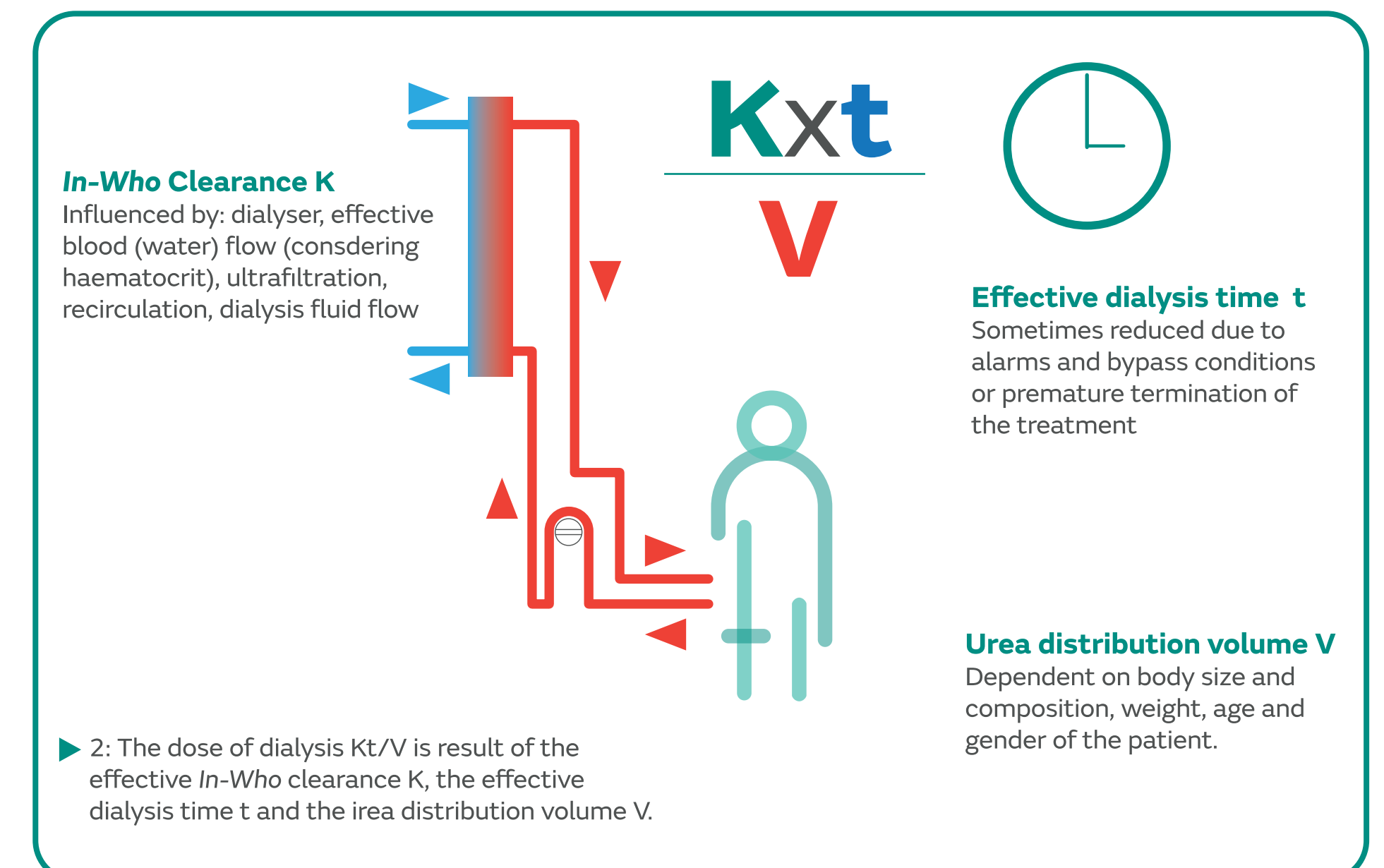
## Results

342 patient-treatments (pt-ttt) were included in the analysis. Patient age range was 4-12 years and patient dry weight ranged between 11-22 Kg.

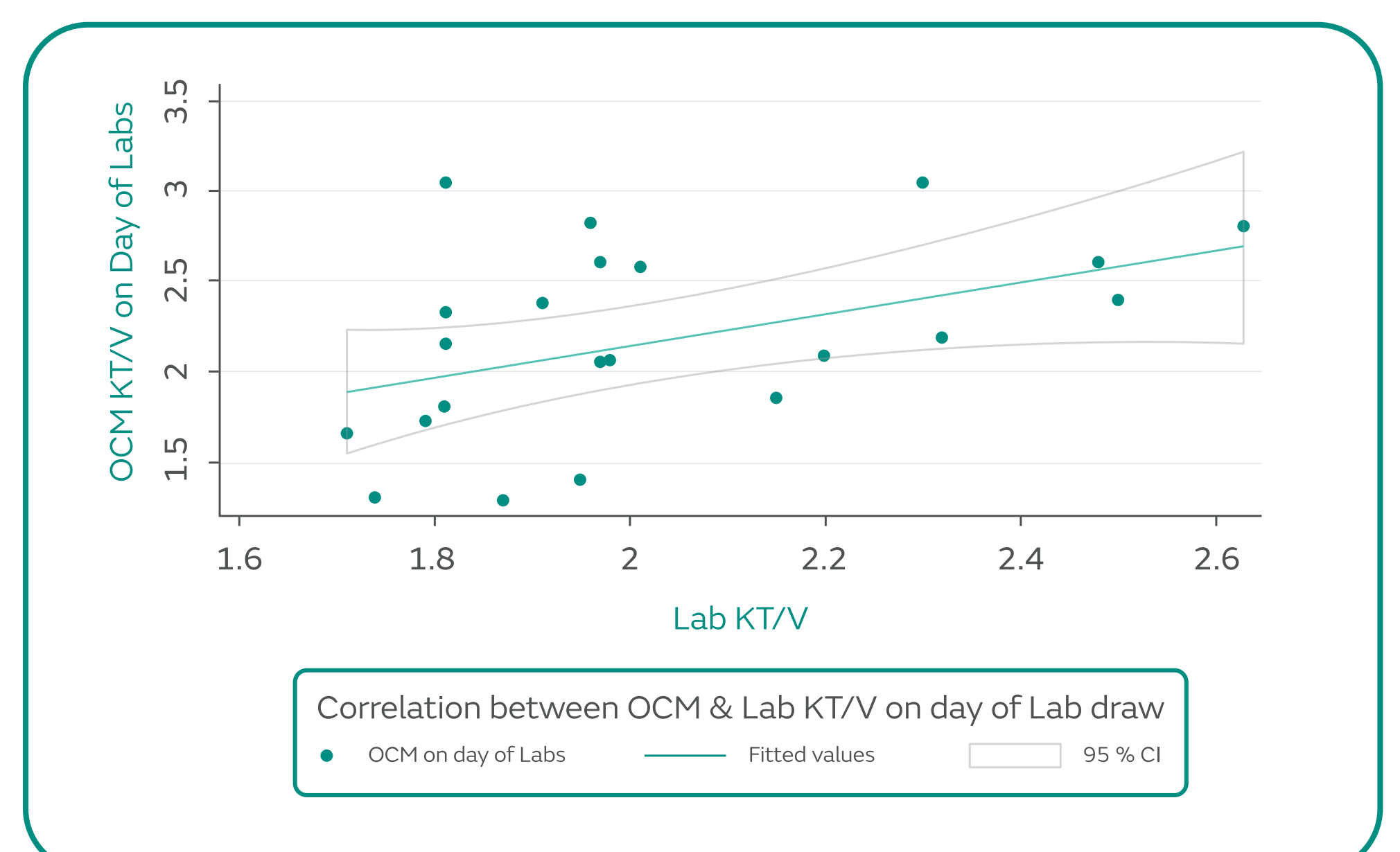
On average, OCM KT/V overestimated Lab KT/V by 7%. There was a modest and significant correlation between lab Kt/V and same-day OCM Kt/V (Graph 1),  $r=0.44$  ( $p = 0.03$ ). This correlation significantly improved after excluding patient-treatments with dry weight  $\leq 15$  Kg.  $r = 0.78$  ( $<0.001$ ).

## Conclusion

OCM Kt/V provides real-time, reliable, non-invasive assessment of dialysis adequacy in children. OCM Kt/V correlated better with Lab Kt/V when the patient weight was  $>15$  kg (this may be related to the accuracy of BCM in assessing Vurea in small children). Larger studies are needed to validate the use of different OCM technologies in children on dialysis before adopting them as an alternative to Lab Kt/V.



**Monthly calculated Kt/V (Daugirdas) was compared to:**  
I. OCM measured Kt/V on the same day of monthly Labs  
II. OCM Kt/V average for the month  
III. OCM Kt/V average for the week before and after lab Kt/V



Graph 1 - OCM Kt/V measured on day of monthly labs significantly correlated with the calculated Lab Kt/V. Correlation co-efficient = 0.44, P value 0.03