B BRAUN
SHARING EXPERTISE

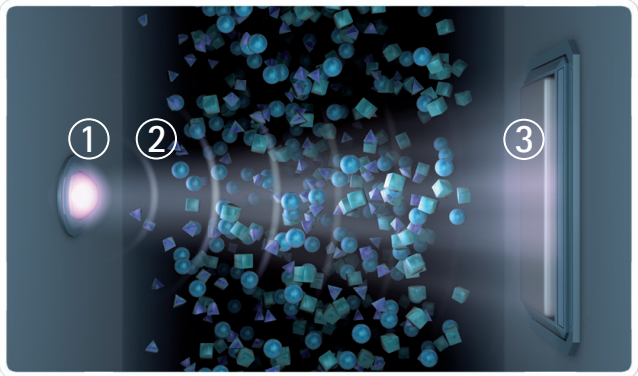
ADIMEA™

REAL-TIME DIALYSIS DOSE MONITORING

ADIMEA™

REAL-TIME MONITORING OF THE DIALYSIS DOSE FOR OPTIMIZING THE TREATMENT QUALITY.

ADVANCED DIALYSIS TECHNOLOGY The innovative Adimea™ system utilizes the principles of spectroscopy for determining the reduction in the molar concentration of urinary excreted substances in the dialysate drain. ① A light source transmits ultraviolet (UV) light ② through the dialysate. The particles contained in the dialysate, which were removed from the plasma during dialysis, absorb the light. This absorption is measured by a sensor ③.
The pioneering technology enables measurement of the UV absorption in the spent dialysate over time. Because there is a close correlation between the change in the molar concentration of urea and the UV absorption curve in the spent dialysate, Adimea is an accurate online measure of Kt/V during the dialysis treatment.



REAL-TIME MONITORING DURING THE ENTIRE TREATMENT PERIOD VIA CONTINUAL EFFECTIVENESS MEASUREMENT

NO DETERMINATION OF V - MERELY REQUIRES THE PRE-DIALYSIS WEIGHT

CONFIGURABLE AND CLEAR DISPLAY OF URR, spKt/V, eKt/V AS WELL AS RESULT PROGNOSIS

CHANGES TO TREATMENT PARAMETERS ARE POSSIBLE AT ANY TIME

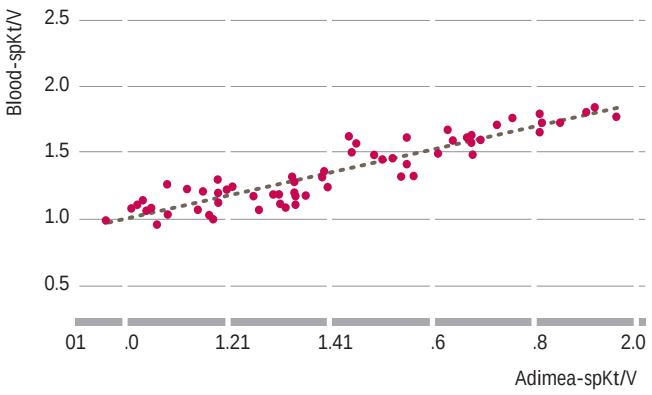


Fig. 1: Scatter plot: Correlation between blood spKt/V and Adimea spKt/V

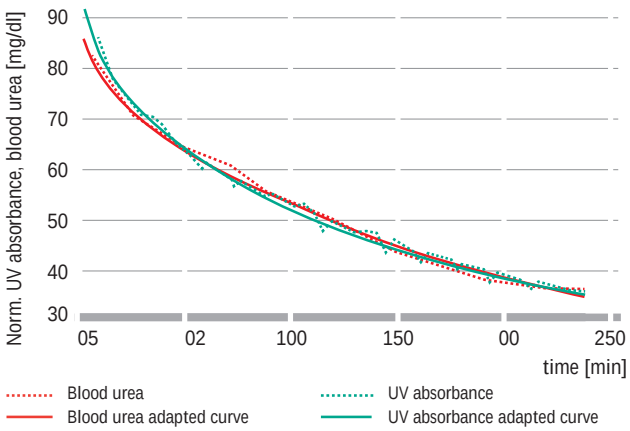


Fig. 2: Sample display for UV absorption signal's treatment progress and serum urea values at 20-minute measurement intervals

Clinical trials[2] reveal a very close correlation between the laboratory-determined blood spKt/V and the spKt/V determined by Adimea. During a total of 64 treatments, blood was serially taken for urea testing to acquire a determination of the spKt/V from the blood as accurate as possible. The spKt/V value determined by Adimea was recorded at the same time. The comparison of the data reveals, with r = 0.93 – an excellentcorrelation between the blood Kt/V and the Adimea Kt/V and hence a high degree of accuracy for the method. The measurement error recorded in these trials for the over alldetermination of the Kt/V is merely 7%.

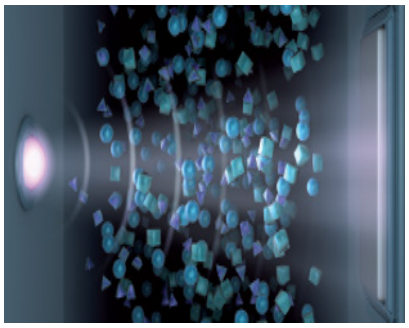
Real-time hemodialysate UV absorbance patterns can be used for protocol-based intradialytic interventions to optimize solute clearance.[1]

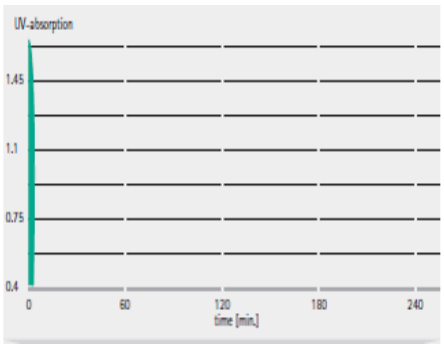
The dialysate UV absorption-based patient care protocol was well-accepted by the nursing staff and physicians. When indicated, the efficacy of the protocol-driven changes to the dialysis prescription was verified by blood-drawn URR determinations. Anecdotally, the nurses, technicians and physicians reported better patient compliance with staying for their prescribed HD time by showing the patients the underdialysis graphic. The staff was often able to dissuade the patients from leaving early (staying 'until the blue line reaches the red line').[1]

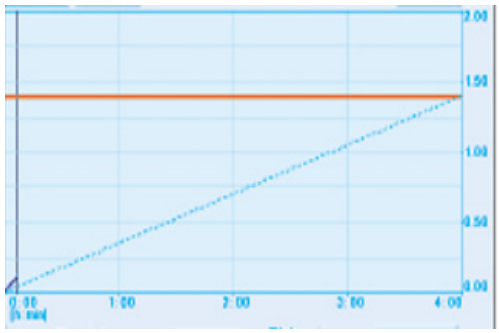
PROGRESSIVE UV MEASUREMENT

ULTRAVIOLET (UV) ABSORPTION MEASUREMENTS can be used to determine dialysis dose because of the close linear correlation between the measured UV absorption signal and urea concentration in the dialysate. For this reason, the measurement values recorded by Adimea can be used as replacement parameters for the urea.
The progress of the measured substance reduction provides a true overview of the administered dialysis dose. Depending on the effectiveness of the dialysis treatment, the concentration of urinary excreted substances, and hence also the UV light absorption, decreases over the course of the treatment.

BEGINNING

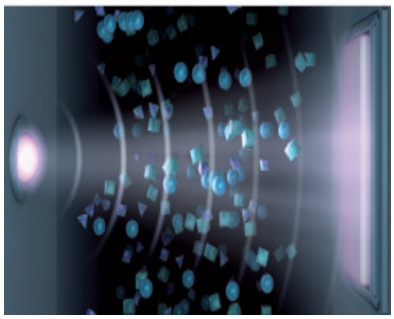


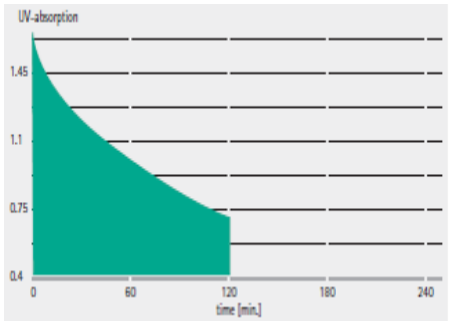


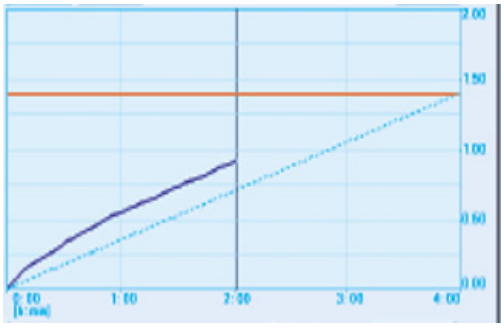


In the beginning, there is a high molar concentration in the dialysate. The urinary excreted substances in the dialysate absorb a majority of UV light on their way from the diode to the sensor.

MIDDLE

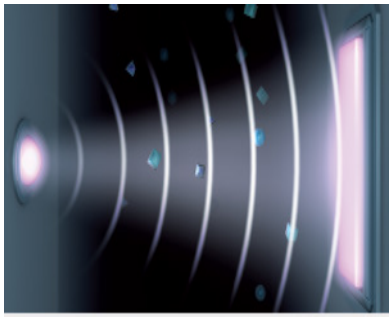


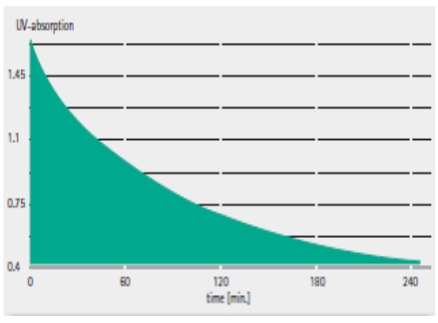


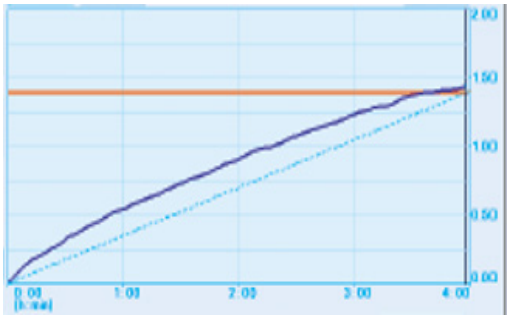


In the middle of treatment, the molar concentration decreases. After 120 minutes of dialysis, the volume of urinary excreted substances is considerably reduced.

END







At the end of treatment, the molar concentration decreases. The low number of molecules still remaining in the dialysate drain barely absorb the UV light.

For more information: bbraunusa.com/adimea

A better dialysis experience doesn't come in a box. It's built from better products, better support, and better partnerships.

References
1 Ross, Edward A, et al. "Interventions to Improve Hemodialysis Adequacy: Protocols Based on Real-Time Monitoring of Dialysate Solute Clearance." Clinical Kidney Journal, vol. 11, no. 3, 2017, pp. 394–399., doi:10.1093/ckj/sfx110.
2 Werner, Günthner et al., [B.Braun Avitum AG, Melsungen], 2009.