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Residual Renal Function in Patients Receiving Hemodialysis

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Problem: Many patients upon the initiation of hemodialysis maintain small amounts of kidney function, known as residual renal function (RRF). This urine output may persist for months and even years while on dialysis and there is evidence to suggest that the maintenance of this function improves patient outcomes.

Purpose: The purpose of this poster presentation is to summarize the empirical evidence describing the relationship between RRF and its effect on the outcomes of dialysis adequacy, nutrition, anemia management, quality of life and survival rate in patients receiving dialysis with a focus on pediatric patients.

Critical Review and Analysis of the Literature: A review of literature was conducted, which included 16 articles published from 1997-2008 that examined dialysis adequacy and RRF.

Findings: A synthesis of findings demonstrated that patients with RRF had decreased mortality rates compared to patients on dialysis who were anuric. The benefits of RRF have a greater significance on their survival than a high Kt/V. (Termorshuizen et al., 2004). Ekan et al. (2001) suggest that RRF leads to better blood pressure control, improved renal dsystrophy, anemia management and better survival from cardiovascular events suggesting RRF is even more important in adolescent patients due to poor compliance. Patients with RRF have higher serum albumin, and nPCR than patients who were anuric with equal Kt/V (Suda et al., 2000). These patients had an increase in body fat percentage, smaller interdialytic fluid gains, better potassium and phosphorus levels and less dietary restrictions. Termorshuizen et al. suggest that patients with RRF have a lower threshold needed for dialysis adequacy. Marron et al (2008) concluded that residual function offers many benefits to the patient and plays a role in patient outcomes greater than that of a dialysis treatment. RRF is crucial to patient outcomes and practitioners should focus increased time to its preservation (Bargman & Golpher). Further research is needed to determine how to maximize dialysis adequacy while preserving residual function, especially in pediatric patients.

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