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INSTRUCTIONS

FILTRATE COMPARTMENTILIZATION. Ramon G. Duarte, R.N., C.H.N., Valley Dialysis Associates, Inc. Because of individual patient characteristics, membrane properties and manufacturing processes, ultrafiltration characteristics vary from patient to patient. A system is disclosed for measuring the exact ultrafiltration rate in hollow fiber artificial kidneys. The system comprises two shutoff valves for terminating dialysate flow through the dialyzer as part of a momentary intermittent operation. A means of adjusting the dialyzer arterial mean pressure maintains a constant pressure during the measure sequence. A bypass valve which allows ultrafiltrate from the dialyzer (during filtrate compartmentalization) into a calibrated sampling chamber, allows for the measure of time (in seconds) required to fill the sampling chambers, the volume of filtrate filling the sampling chambers, and the mean arterial pressure, yielding a direct computation of the ultrafiltration rate in accordance with the equation:

$$UFR = \frac{V}{AMP} \text{ where,}$$

$V = \frac{\text{Volume of filtrate in ml}}{\text{Time in sec/3600 sec/hr}}$ and

$AMP = \text{Arterial Mean Pressure} = \frac{\text{Arterial Pressure} + \text{Venous Resistance}}{2}$

where,

AP = arterial pressure = pre-dialyzer blood pressure and

VR = venous resistance = post-dialyzer blood pressure

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