Appendix I

Calculation of GFR from urine collections

GFR = glomerular filtration rate in ml/min/m², SA = surface area in m², t = duration of collection in minutes (usually 1440), \( U_{\text{vol}} \) = urine collection volume in millitres, \( U_{\text{urea}} \), \( U_{\text{creat}} \) = urine urea, creatinine concentration. \( S_{\text{urea}} \), \( S_{\text{creat}} \) = serum urea, creatinine concentrations.

Urea and creatinine concentrations must be in same units for urine and serum.

\[
GFR = \frac{U_{\text{vol}}}{2 \times t} \times \left( \frac{U_{\text{urea}}}{S_{\text{urea}}} + \frac{U_{\text{creat}}}{S_{\text{creat}}} \right) \times \frac{1.73}{SA}
\]

Calculation of surface area: preferred method (Gehan and George) [28]

SA in m², weight in kg, height in cm.

\[
SA = 0.0235 \times W^{0.51456} \times H^{0.42246}
\]

Calculation of surface area: alternative method (Dubois and Dubois) [28]

SA in m², weight in kg, height in cm.

\[
SA = 0.007184 \times W^{0.425} \times H^{0.725}
\]

Calculation of GFR from age, gender, race and blood urea nitrogen (BUN), creatinine, and albumin (MDRD equation) [5]

Albumin in g/dl, age in years. GFR in ml/min/1.73m². Validated in US white and black (Afro-Caribbean) patients.

Multiply by 1.18 if patient is black. Multiply by 0.762 if patient is female.

SI units (Creat in \( \mu \text{mol/l} \), Urea in mmol/l).

\[
GFR = 170 \times (\text{Creat} \times 0.0113)^{-0.999} \times \text{age}^{-0.176} \times (\text{Urea} \times 2.8)^{-0.17} \times \text{Alb}^{0.318}
\]

US units (Creat in mg/dl, Urea in mg/dl)

<table>
<thead>
<tr>
<th>Table 1. Levels of renal function (based on MDRD data)</th>
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<tr>
<td>Gender</td>
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<td>Referral (latest)</td>
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<td>Male</td>
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<tr>
<td>Start dialysis</td>
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<td>Male</td>
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<td>Female</td>
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</tbody>
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SECTIONS I. Measurement of renal function, when to refer and when to start dialysis

\[ \text{GFR} = 170 \times \text{Creat}^{-0.999} \times \text{age}^{-0.176} \times \text{BUN}^{-0.17} \times \text{Alb}^{0.318} \]

Table 1 provides levels of renal function