

## Dialysis Lab Tests At a Glance

Version 1.0 Revised July 2008

| Blood Test  | Normal Values  | Normal Values for CKD                                      | Signs/Symptoms   |
|---|--|--|--|
| Albumin   | 3.5 – 5 gm/dl  | Goal is >4.0   | Weight loss, poor appetite, medication side effects  |
| Aspartate aminotranferase [AST] (formerly SGOT)                   | 8-20 U/L   | Same   | Jaundice, nausea/vomiting, abdominal pain  |
| Alanine aminotransferase [ALT] (formerly SGPT)                    | 7-56 U/L   | Same   | Abdominal pain, nausea/vomiting, other medication side effects e.g. muscle cramps  |
| Bicarbonate [CO <sub>2</sub> ]                                    | 21–30 mEq/L  | >22 mEq/L  | Rapid breathing, shortness of breath   |
| Bilirubin<br>- Direct<br>- Total                                  | <0.3 mg/dL<br>0.2-1.3 mg/dL                            | Same   | Jaundice, abdominal pain, fatigue, appetite changes  |
| Blood Cultures  | Negative or no growth                                  | Same   | Depends on source: fever, malaise, rigors, hypotension, nausea, abdominal discomfort, cough, etc.  |
| Blood Urea Nitrogen [BUN]   | 7-21 ml/dL<br>Expect ratio of<br>BUN:Creatinine ~ 10:1 | <100; depends on protein intake                            | Fatigue, nausea, insomnia, dry or itching skin, urine-like body odor and breath  |
| Ca X PO <sub>4</sub>  | NA   | ≤55  | High = calcification of blood vessels and soft tissues and bone demineralization   |
| Calcium   | 8.5–10.5 mg/dl   | Same although preferred upper level is <10                 | Low = muscle twitching/cramping, seizures, depression, hair loss, cataracts<br>High = muscle weakness, fatigue, symptoms same as sodium, mental changes ranging from mild confusion to psychosis |
| Chloride [Cl]   | 95–108 mEq/L   | Same   | Low: hyperexcitable nervous system, low blood pressure, shallow breathing, tetany<br>High: muscle weakness, fatigue, deep breathing  |
| Creatinine  | 0.5-1.4 mg/dL  | 12–20 mg/dL: varies with muscle mass                       |  |
| Ferritin  | 12-300 ng/mL male<br>10-150 mg/mL female               | 100-500 ng/mL CKD 1-4 and PD;<br>200-500 ng/mL HD patients | If anemic: pallor, fatigue, tachycardia, cold intolerance<br>If infection or inflammation: abscess/wounds, fever   |
| Glucose   | Fasting: <126 mg/dL                                    | Same   | High = Excessive thirst<br>Low = hunger, fatigue, vertigo, mood changes, sweating, anxiety, poor memory  |
| Hematocrit [Hct]  | 45-52% male<br>37-46% female                           | 30-36% if on erythropoiesis stimulating agent (ESA)        | Fatigue, shortness of breath, chest pain, cold intolerance, weakness   |
| Hemoglobin  | 13.2-16.2 gm/dL male<br>12-15.2 gm/dL female           | 10-12 gm/dL if on erythropoiesis stimulating agent (ESA)   | See hematocrit   |
| Hemoglobin A1c  | <7%  | Same   | May be inaccurate in ESRD due to the decreased RBC lifespan  |
| Hepatitis Antibody [Anti HBs]                                     | Negative (Positive if recovered or vaccinated)         | Same   | Patients are susceptible to infection by the hepatitis B virus   |
| Hepatitis B surface antigen [HBsAg] (formerly Australian Antigen) | Negative   | Same   | Abdominal pain, anorexia, nausea/vomiting, jaundice, fatigue, or asymptomatic  |
| Hepatitis C Antibody [anti-HCV]                                   | Negative   | Same   | 80% of persons have no signs or symptoms; symptoms may include: jaundice, fatigue, dark urine; abdominal pain, loss of appetite, nausea  |

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|---|--|--|---|
| Homocysteine                                  | 5–15   |  |   |
| Magnesium [Mg]                                | 1.6 – 2.4 mEq/L  | Same   | Decreased mental function, nausea, and hypotension                                |
| Mean corpuscular volume [MCV]                 | 82-102 male<br>78-101 female   | Same   |   |
| Parathyroid Hormone Level [PTH]<br>Intact PTH | 10-65 pg/ml  | Stage 3 35-70 pg/ml<br>Stage 4 70-110 pg/ml<br>Stage 5 150-300 pg/ml | Initially, asymptomatic; later, itching, bony changes on X-ray, fractures         |
| Phosphorus [PO <sub>4</sub> ]                 | 3.0–5.0 mg/dL  | Goal: 3.5 – 5.5 mg/dL  | High: causes elevated PTH by lowering Ca<br>Abnormal: bone fractures              |
| Platelet count                                | 140-450 x 10 <sup>3</sup> /μL  | Same   |   |
| Potassium [K]                                 | 3.6-5 mEq/L  | Same, with some patients tolerating values up to 6.0 without problem | With ESRD, few symptoms below 7.0. Extreme weakness preceding cardiac arrest      |
| Red Blood Cells [RBC]                         | 4.3-6.2 x 10 <sup>6</sup> /μL male<br>3.8-5.5 x 10 <sup>6</sup> /μL female | Same   |   |
| Reticulocyte Count                            | 0.5 – 1.5%   | Same but will be higher in states of increased RBC production        |   |
| Sodium [Na]                                   | 133–145 mEq/L  | Same   | Thirst, leading to drinking more, fluid gain, elevated BP and shortness of breath |
| Total Protein                                 | 6–8 gm/dL  | Same   |   |
| Transferrin saturation [TSAT]                 | 15-50%   | Goal: 20-50%   | Anemia symptoms: fatigue, shortness of breath, cold intolerance                   |
| White Blood Count [WBC]                       | 4.8–10.8 x 10 <sup>3</sup> /μL   | Same   | Fever   |

Table revised July 2008 with the assistance of Matthew Arduino, MS, DrPH, Donna Bednarski, MSN, RN, CS, CNP, CNN; Deborah Brooks, MSN, RN, ANP, CNN, CNN-NP; Lesley Dinwiddie, MSN, RN, FNP, CNN; and Glenda Payne, RN, MS, CNN

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