LAB #: B000000-0000-0
PATIENT: Sample Patient
ID: PATIENT-S-00016
SEX: Female
AGE: 34

CLIENT #: 12345
DOCTOR:
Doctor's Data, Inc.
3755 Illinois Ave.
St. Charles, IL 60174

Toxic & Essential Elements; Whole Blood

ESSENTIAL AND OTHER ELEMENTS		RESULT / UNIT	REFERENCE INTERVAL	PERCENTILE (2.5th, 16th, 50th, 84th, 97.5th)
Calcium	(Ca)	**5.2 mg/dL**	4.6 - 6.2	
Magnesium	(Mg)	**3.8 mg/dL**	2.8 - 4.0	
Copper	(Cu)	**93 µg/dL**	65 - 120	
Zinc	(Zn)	**629 µg/dL**	480 - 780	
Manganese	(Mn)	**9 µg/L**	6 - 19	
Lithium	(Li)	**0.2 µg/L**	0.4 - 20	
Selenium	(Se)	**219 µg/L**	160 - 400	
Strontium	(Sr)	**10 µg/L**	9 - 45	
Molybdenum	(Mo)	**1.4 µg/L**	0.7 - 3.0	

TOXIC METALS		RESULT / UNIT	REFERENCE INTERVAL	PERCENTILE (95th, 99th)
Arsenic	(As)	**5.4 µg/L**	< 9.0	
Barium	(Ba)	**0.2 µg/L**	< 5.0	
Cadmium	(Cd)	**0.6 µg/L**	< 2.0	
Cobalt	(Co)	**0.4 µg/L**	< 1.5	
Lead	(Pb)	**0.4 µg/dL**	< 3.0	
Mercury	(Hg)	**1.3 µg/L**	< 5.0	
Nickel	(Ni)	**< 3 µg/L**	< 5	
Platinum	(Pt)	**< 0.2 µg/L**	< 2.0	
Silver	(Ag)	**< 0.1 µg/L**	< 2.0	
Thallium	(Tl)	**< 0.1 µg/L**	< 1.0	
Uranium	(U)	**< 0.1 µg/L**	< 1.0	

SPECIMEN DATA

Comments:

Date Collected: **11/28/2011**
Date Received: **11/30/2011**
Date Completed: **12/8/2011**

Time Collected: **10:15 AM**
Fasting: **Yes**

Methodology: **ICP-MS**

v8.10

Blood lead levels in the range of 5-9 µg/dL have been associated with adverse health effects in children aged 6 years and younger.

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Essential Elements; Serum

ESSENTIAL ELEMENTS		RESULT	UNIT	REFERENCE INTERVAL	-2SD -1SD MEAN +1SD +2SD
Calcium	(Ca)	**9.1**	mg/dL	8.6- 10.3	
Magnesium	(Mg)	**2.0**	mg/dL	1.7- 2.5	
Sodium	(Na)	**138**	mEq/L	133- 145	
Potassium	(K)	**3.5**	mEq/L	3.5- 5.0	
Phosphorus	(P)	**3.7**	mg/dL	2.5- 5.0	
Iron	(Fe)	**115**	µg/dL	50- 200	

INFORMATION

Sodium and Potassium
Sodium (Na^+) and potassium (K^+) are electrolytes that affect most metabolic functions. They serve to maintain osmotic pressure and hydration of various body fluid compartments, body pH and regulation of heart and muscle functions. Electrolytes are also involved in oxidation-reduction reactions and participate in essential enzymatic reactions. Electrolytes can be affected by state of hydration. Hemolysis can result in falsely elevated K^+.

Magnesium
Magnesium (Mg) is a major intracellular cation that is involved in over three hundred enzymatic reactions in the body. Little is known about the factors affecting serum Mg, but the parathyroid gland appears to be involved. Low serum Mg levels may be associated with poor diet/malabsorption, diabetes, hyperthyroidism, hypoparathyroidism, myocardial infarction, congestive heart failure, liver cirrhosis, alcoholism and diuresis. Increased serum Mg levels may be associated with renal failure, dehydration, severe diabetic acidosis, and Addison's disease.

Calcium
Although 99% of calcium exists in bones and teeth, serum calcium (Ca) is of greatest clinical concern. Ca regulates transmission of nerve impulses, muscle contraction, coagulation, and numerous enzymatic reactions. The uptake and release of Ca from bone is regulated by parathyroid hormone, and serum Ca levels are inversely proportional to phosphorus levels. Low serum Ca results in muscle tetany while high Ca levels result in lowered neuromuscular excitability, muscle weakness, and other more complex symptoms. Marked variations in serum Ca may result from parathyroid gland or bone disease, poor diet/intestinal absorption of calcium (vitamin D), kidney disease, and other abnormalities.

Inorganic Phosphorus
Measurements of serum inorganic phosphorus (phosphate or PO_4) are used in the diagnosis and treatment of disorders including parathyroid gland and kidney diseases, and vitamin D status. Serum PO_4 is regulated by coordinated efforts of vitamin D and parathyroid hormone, and PO_4 levels are inversely proportional to Ca levels. Low PO_4 may be associated with fatigue, paresthesias and muscle weakness, while elevated PO_4 may be associated with hypoparathyroidism, hyperthyroidism, hypocalcemia and tetany.

Iron
Measurements of non-heme, serum iron (Fe) are used in the diagnosis and treatment of diseases such as Fe deficiency anemia, Fe toxicity and acute or chronic hemochromatosis. The most comprehensive assessment of Fe status includes transferrin saturation and ferritin.

SPECIMEN DATA

Comments:

Date Collected: **11/28/2011**
Date Received: **11/30/2011**
Date Completed: **12/1/2011**

Time Collected: **10:15 AM**
Fasting: **Yes**

Methodology: **Na, K ISE**
Ca, Mg, P, Fe Spectrophotometry

v08.10