Functional Blood Chemistry Analysis & The BCA Software

Your Diagnostic Advantage

Agenda

- Brief case study – The “Standard” Approach
- Review of Functional Blood Chemistry Analysis
- Using Blood Chem Software in Clinical Practice
- Case Study Contd. – The “Functional”: Approach”

PATIENT CASE STUDY SERIES
Bloodchemsoftware.com

FBCA Case Study With

DR. DICKEN WEATHERBY

Naturopathic Physician

CASE #1:

44 Year Old Male

BloodChemistry SOFTWARE

CASE #1:

44 year old male presents to clinic complaining of fatigue, abdominal weight gain, frequent coughs and colds last few winters, low libido and low "drive", frequent muscle and joint pain, shortness of breath and dizziness.

BloodChemistry SOFTWARE

Analysis of The Lab Test Report

CASE 1 Age: 44 year old Male

Tests	Result	Flag	Units	Reference Interval	
CMP14+LP+4AC+CBC/D/Plt					
Glucose, Serum	89		mg/dL	65-99	SE
Uric Acid, Serum	4.3		mg/dL	3.7-8.6	SE
BUN	12		mg/dL	6-24	SE
Creatinine, Serum	0.81		mg/dL	0.76-1.27	SE
eGFR If NonAfricn Am	110		mL/min/1.73	>59	SE
eGFR If Africn Am	128		mL/min/1.73	>59	SE
BUN/Creatinine Ratio	15			9-20	SE
Sodium, Serum	140		mmol/L	134-144	SE
Potassium, Serum	4.4		mmol/L	3.5-5.2	SE
Chloride, Serum	104		mmol/L	97-108	SE
Carbon Dioxide, Total	25		mmol/L	20-32	SE
Calcium, Serum	9.2		mg/dL	8.7-10.2	SE
Phosphorus, Serum	3.5		mg/dL	2.5-4.5	SE
Protein, Total, Serum	7.1		g/dL	6.0-8.5	SE
Albumin, Serum	4.5		g/dL	3.5-5.5	SE
Globulin, Total	2.6		g/dL	1.5-4.5	SE
A/G Ratio	1.7			1.1-2.5	SE
Bilirubin, Total	1.1		mg/dL	0.0-1.2	SE
Alkaline Phosphatase, S	52		IU/L	25-150	SE
LDH	176		IU/L	0-225	SE

Analysis of The Lab Test Report

Tests	Result	Flag	Units	Reference Interval	Lab
CMP14+LP+4AC+CBC/D/Plt					
AST (SGOT)	17		IU/L	0-40	SE
ALT (SGPT)	39		IU/L	0-55	SE
Iron, Serum	130		ug/dL	40-155	SE
Cholesterol, Total	**200**	**High**	mg/dL	100-199	SE
Triglycerides	101		mg/dL	0-149	SE
HDL Cholesterol	60		mg/dL	>39	SE
	According to ATP-III Guidelines, HDL-C >59 mg/dL is considered a negative risk factor for CHD.				
VLDL Cholesterol Cal	20		mg/dL	5-40	SE
LDL Cholesterol Calc	**120**	**High**	mg/dL	0-99	SE
T. Chol/HDL Ratio	3.3		ratio units	0.0-5.0	SE
Estimated CHD Risk	< 0.5		times avg.	0.0-1.0	SE
	T. Chol/HDL Ratio Men Women 1/2 Avg.Risk 3.4 3.3 Avg.Risk 5.0 4.4 2X Avg.Risk 9.6 7.1 3X Avg.Risk 23.4 11.0 The CHD Risk is based on the T. Chol/HDL ratio. Other factors affect CHD Risk such as hypertension, smoking, diabetes, severe obesity, and family history of premature CHD.				
WBC	4.9		x10E3/uL	4.0-10.5	SE
RBC	4.93		x10E6/uL	4.10-5.60	SE
Hemoglobin	14.8		g/dL	12.5-17.0	SE
Hematocrit	44.3		%	36.0-50.0	SE
MCV	90		fL	80-98	SE
MCH	30.0		pg	27.0-34.0	SE
MCHC	33.4		g/dL	32.0-36.0	SE
RDW	13.9		%	11.7-15.0	SE
Platelets	231		x10E3/uL	140-415	SE
Neutrophils	42		%	40-74	SE
Lymphs	**47**	**High**	%	14-46	SE
Monocytes	8		%	4-13	SE
Eos	2		%	0-7	SE
Basos	1		%	0-3	SE
Immature Cells					SE
Neutrophils (Absolute)	2.1		x10E3/uL	1.8-7.8	SE
Lymphs (Absolute)	2.3		x10E3/uL	0.7-4.5	SE
Monocytes(Absolute)	0.4		x10E3/uL	0.1-1.0	SE
Eos (Absolute)	0.1		x10E3/uL	0.0-0.4	SE
Baso (Absolute)	0.1		x10E3/uL	0.0-0.2	SE
Immature Granulocytes	0		%	0-2	SE
Immature Grans (Abs)	0.0		x10E3/uL	0.0-0.1	SE

Analysis of The Lab Test Report

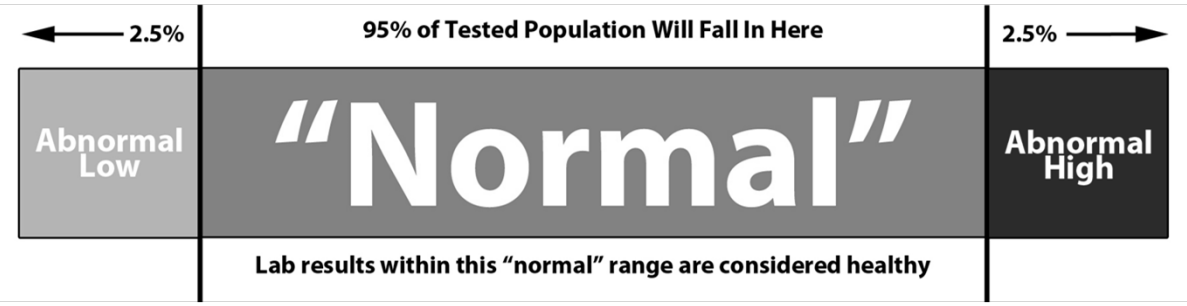
Tests	Result	Flag	Units	Reference Interval	Lab
CMP14+LP+4AC+CBC/D/Plt					
NRBC					SE
Hematology Comments:					SE
Testosterone,Free and Total					
Testosterone, Serum	366		ng/dL	348-1197	SE
Free Testosterone(Direct)	8.2		pg/mL	6.8-21.5	BN
Thyroxine (T4) Free, Direct, S					
T4,Free(Direct)	1.33		ng/dL	0.82-1.77	SE
DHEA-Sulfate					
DHEA-Sulfate	**83.7**	**Low**	ug/dL	88.9-427.0	SE
TSH					
TSH	1.180		uIU/mL	0.450-4.500	SE
Estradiol					
Estradiol	20.8		pg/mL	7.6-42.6	SE
	Roche ECLIA methodology				
Prostate-Specific Ag, Serum					
Prostate Specific Ag, Serum	0.6		ng/mL	0.0-4.0	SE
	Roche ECLIA methodology. . According to the American Urological Association, Serum PSA should decrease and remain at undetectable levels after radical prostatectomy. The AUA defines biochemical recurrence as an initial PSA value 0.2 ng/mL or greater followed by a subsequent confirmatory PSA value 0.2 ng/mL or greater. Values obtained with different assay methods or kits cannot be used interchangeably. Results cannot be interpreted as absolute evidence of the presence or absence of malignant disease.				
C-Reactive Protein, Cardiac					
C-Reactive Protein, Cardiac	0.73		mg/L	0.00-3.00	SE
	Relative Risk for Future Cardiovascular Event Low <1.00 Average 1.00 - 3.00 High >3.00				
Insulin					
Insulin	6.8		uIU/mL	2.6-24.9	SE
Triiodothyronine,Free,Serum					
Triiodothyronine,Free,Serum	3.7		pg/mL	2.0-4.4	SE
Sex Horm Binding Glob, Serum					
Sex Horm Binding Glob, Serum	34.2		nmol/L	16.5-55.9	SE

Values Out of Range

- Cholesterol – 200 HIGH
- LDL – 120 HIGH
- Lymphs – 47 HIGH
- DHEA – 83.7 LOW
- ***What does this tell us about this patient's condition?***

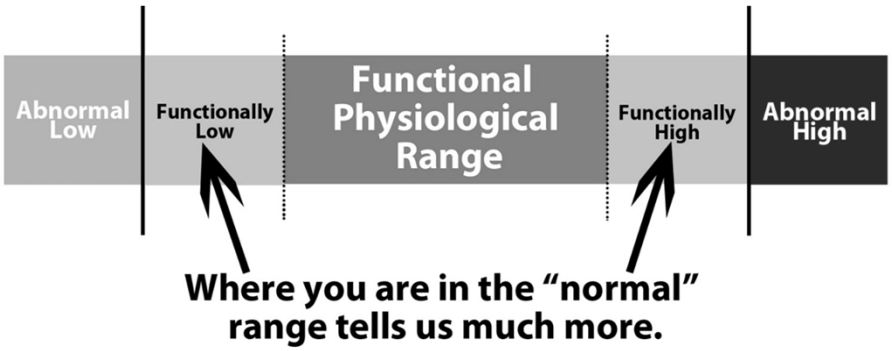
Traditional Lab Reports Lack Meaning

The Problem With "Normal"



- The "normal" reference values change depending upon the prevalence of disease in the general population.
- "Normal" reference ranges represent "average" populations, rather than the optimal level required to maintain good health

The Functional "Optimal" Range



- A result in this "gray area" tells me something's not right in the physiological system associated with this element.

Where do these optimal ranges come from?

- "Normal" ranges 20 to 30 years ago.
- Biochemical Biopsy
- Research
- "Old Time Docs"
- Clinical observations
- Where to Start?

Approaching the Analysis

- Look for values outside “normal” range
- Enter values into the software
- Look for values outside the optimal/ physiological range
- Begin the analysis by starting to look for patterns among the elements and do your Report of Findings Presentation

Let the Software Do Your FBCA Analysis!

Let’s look at the software!