BioReference LABORATORIES

ADVANCED CARDIOLOGY TESTING

DOCTOR		PATIENT
SUSAN SMITH, M.D. 123 MAIN ST 51 ANYTOWN NY 12345 X1111		JONES, JANE 10/16/1928

NAME	PATIENT I.D. / ROOM NO.	DOCTOR / GROUP NAME
JONES, JANE		SMITH, SUSAN

LAB I.D. NO.	DATE COLLECTED	DATE RECEIVED	DATE OF REPORT	AGE	SEX
123456789	10/16/2008 15:44	10/16/2008 22:09	10/23/2008	80 Y	F

Global Risk Calculation

Risk calculation using Framingham estimated 10-year projection for CHD.

	Result	Low Risk	Moderate Risk	High Risk
Global Risk	10%	<10% and 0-1 Risk factors	10-20% and 2+ Risk Factors	>20% or History of CHD

Risk Factor Assessment

Smoked cigarettes in the last month: Y

Blood pressure volume (Systolic/Diastolic): 155/85 mm Hg

Diabetic: Y

Additional Risk Factors:
Family History of CHD
Obesity

Basic Lipid Evaluation

Test	Result	Units		Goals	Moderate Risk	High Risk
Total Cholesterol	171	mg/dL		<200	200-239	>239
Triglycerides	254	mg/dL		<150	150-199	>199
HDL-C, Direct	35	mg/dL	(Female)	>45	45-20	<20
HDL-C as % of Total Cholesterol	20	%		>25	25-9	<9
Cholesterol / HDL-C Ratio	4.9		(Female)	<3.9	5.8-9.0	>9.0
LDL/HDL-C Ratio	2.66			<3.55	3.55-8.00	>8.00
Non-HDL Cholesterol	136	mg/dL		<130	130-189	>189
VLDL Cholesterol	50	mg/dL		<30	30-40	>40
LDL-C Direct	93	mg/dL		<100	100-160	>160

Lipid Fractions

Performed by LipoScience, Raleigh, NC

NMR LipoProfile® Test Results

Test	Result	Units	Goals	Moderate Risk	High Risk
LDL-P (Total Number of LDL Particles)	2127	nmol/L	<1000	1300-1600	>1600
Small LDL-P (Number of Small LDL Particles)	1926	nmol/L	<600	850-1200	>1200
LDL Particle Size	19.7	nm	LARGE - PATTERN A 23.0-20.6		SMALL - PATTERN B 20.5-18.0
HDL-P (Large HDL Subclass Particles)	0.6	umol/L	>9.0	9.0-4.0	<4.0

Additional Risk Factors

Test	Result	Units		Goals	Moderate Risk	High Risk
LP [a] -C (Lipoprotein a)	>95.0	mg/dL		<20	20-30	>30
hs-CRP	1.8	mg/L		<1.0	1.0-3.0	>3.0
Lp-PLA2 (Lipoprotein associated Phospholipase)	99	ng/dL		<200	200-235	>235
Apolipoprotein A-1	124	mg/dL	(Female)	Normal Range: 108-225		
Apolipoprotein B	94	mg/dL	(Female)	Normal Range: 60-117		
Apo B/A-1 Ratio	0.76		(Female)	Normal Range: 0.35-1.15		

Additional physician-requested test results appear on your standard report form.

James Weisberger, MD
MEDICAL DIRECTOR

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Interpretation for:
JONES, JANE

Global Risk Calculation

Risk Score is based on the Framingham estimated 10-year projection for coronary heart disease (CHD) outcomes including a heart attack and coronary death. The risk factors included are: age, sex, total cholesterol, HDL Cholesterol, blood pressure and cigarette smoking. Diabetes confers a high risk for CHD events, and such patients are considered to have similar risk to patients with known coronary heart disease.

Basic Lipid Evaluation

Triglycerides

Triglycerides are a type of fat that exists in blood plasma. A normal level for fasting triglycerides is less than 150 mg/dL (1.70 mmol/L). High triglycerides are often part of a group of conditions called the metabolic syndrome. Metabolic syndrome is the combination of increased blood pressure, high blood sugar, excess weight, low HDL ("good") cholesterol, and high triglycerides. This syndrome increases your risk for heart disease as well as for diabetes and stroke. If triglycerides are above 500 mg/dL, you should first lower triglycerides to prevent pancreatitis (an inflamation of an abdominal gland called the pancreas) by eating a diet very low in fat (<15% from fat), managing your weight and engaging in physical activity, possibly in conjunction with medicines that your physician will prescribe. If your triglycerides are 200-499 mg/dL, your physician may consider adding a drug therapy, but only after you have reached the level of LDL ("bad cholesterol") recommended for your risk profile.

HDL, Direct

High HDL is commonly known as the "good" cholesterol. It is usually reported as a measured value. High HDL helps clear the "bad" cholesterol (LDL) from your blood and keep it from clogging your arteries. High levels of HDL can protect you from a heart attack.

Cholesterol/HDL Ratio

The ratio is important in determining risk for coronary heart disease. It is obtained by dividing the total cholesterol by the HDL cholesterol. A desirable ratio is below 5 (5:1); the optimum ratio is 3.5 (3.5:1).

LDL, Direct

Direct LDL is a better measure than calculated LDL especially in patients with diabetes, the metabolic syndrome, elevated triglycerides (called hypertriglyceridemia) and the lower the measured LDL value. Elevated levels of LDL, as measured with the Direct LDL, indicate a greater risk of developing heart disease. Decreasing levels show a response to lipid-lowering lyfestyle changes and/or drug therapies and indicate a decreased risk of heart disease.

Non-HDL Cholesterol (LDL & VLDL)

Non-HDL C is used as a treatment target for cholesterol especially in patients with diabetes or the metabolic syndrome. Increasing levels of non-HDL-C correspond to a higher risk of cardiovascular disease (CVD) mortality.

LDL Particle Assessment

LDL Particle Number

The higher the number of LDL particles, the greater the risk for coronary heart disease. A patient can have a normal cholesterol level, but may be at an increased risk for CHD if they have a high number of LDL particles.

Small LDL Particle

Your Small LDL-P number is a measure of the number of small LDL particles in your blood. These particles are associated with an increased risk of heart disease; more of these small particles lead to greater risk. Your Small LDL-P score can vary widely, with a lower score being associated with a lower risk.

LDL Particle Size

The size of LDL particles is important but only when the patient has too many of them. Small LDL Particles, or Pattern B, puts you at more risk for CHD than if you have larger LDL particles (Pattern A).

Large HDL Particle Count

A high number of HDL particles is optimal, especially the large HDL-P because they take the cholestereol out of the artery wall. "High-risk" values are <4.0 umol/L (<25th percentile) and "low-risk" values are >9.0 umol/L (>75th percentile).

Additional Risk Factors

LP(a)

Lp(a) excess is the most common inherited lipid disorder in patients with premature coronary heart disease. Lp(a) levels are genetically determined and are not affected by lifestyle changes. High Lp(a) levels increase a person's risk for developing coronary artery disease and cerebral vascular disease, and can occur in patients with a normal lipid profile. In patients with high levels of Lp(a), the goal is to treat elevated LDL-C or low HDL-C with a statin, or niacin, which are the only drugs known to lower Lp(a).

hs-CRP

hs-CRP is most often used to help predict a healthy person's risk of cardiovascular disease and is a marker of low grade inflammation that is associated with cardiovascular risk. People who have high hs-CRP results have an increased risk of having a heart attack. The CRP molecule itself is not a harmful molecule in the body, but a higher level of CRP is a reflection of higher than normal inflammation. Taking nonsteroidal anti-inflammatory drugs (like aspirin, Advil, Motrin, and Naproxin) or statins (a class of cholesterol-lowering drugs) may reduce CRP levels in blood. Both anti-inflammatory drugs and statins may help to reduce the inflammation, thus reducing CRP.

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Interpretation for:
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Lp-PLA2

The enzyme Lp-PLA2 circulates in the blood, and attaches to LDL cholesterol particles in the bloodstream. Lp-PLA2 is an inflammatory enzyme that is implicated in the formation of blockages in arteries that are prone to rupture. If you have elevated Lp-PLA2 levels, you are twice as likely to suffer a coronary event as similar individuals who do not have elevated Lp-PLA2 levels. Elevated levels of Lp-PLA2 are indicative of blood vessel inflammation associated with atherosclerosis (e.g. blocked arteries).

Apolipoprotein A1

Apolipoprotein A1 (Apo A1) is a protein bound to cholesterol in the bloodstream and is the major protein component of high density lipoprotein (HDL) cholesterol (the "good" cholesterol). Apo A1 is carried in HDL, and it is usually low when HDL is reduced. A low Apo A1 thus is associated with increased risk for CHD, Deficiencies in Apo A1 are sometimes caused by genetic disorders, smoking, uncontrolled diabetes, or drugs such as beta blockers, diuretics, progestins and androgens.

Apolipoprotein B

Apolipoprotein B (Apo B) is the major protein bound to non-HDL cholesterol. Non-HDL cholesterol is highly correlated with total Apo B. Apo B has been proposed as an alternative to LDL cholesterol as a risk factor. High levels of Apo B-100 highly correlate with non-HDL C and are associated with an increased risk of CAD. Elevations may be due to a high fat diet and/or decreased clearing of LDL from the blood.

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