Dr. M. Jaksch Freiburg Medical Lab

Laboratory Report Online Version

Report Date: 17.11.2018

Patient Name: Sample Report UAE risk profile

Gender:
Date of Birth:

Female 01.01.1973

Nationality:

Your ID:

Remarks:

Test Request Code: 18

Sample ID: Patient IDNo: de: 1818

380526

Sampling Date / Time: 17.11.2018 / 00:00 Receipt Date / Time: 17.11.2018 / 12:42

Insurance:

Analysis	Result	Flag	Units	Reference Range
Haematology				
CBC (EDTA blood)				
WBC	7.6		10^3/µl	4.0 - 10.0
RBC	4.00		10^6/µl	3.8 - 4.8
HGB	12.0		g/dl	12.0 - 15.0
HCT	38.8		%	37 - 47
MCV	83.1		fl	83.0 - 101.0
MCH	22.1	low	pg	27.0 - 32.0
MCHC	30.9	low	g/dl	31.5 - 36.0
PLT	272		10^3/ul	150 - 450
Differential Count (automatic)				
Neutrophils	50.4		%	50 - 70
Lymphocytes	42.4	high	%	20 - 40
Monocytes	5.2		%	4 - 12
Eosinophils	1.7		%	0 - 4
Basophils	0.3		%	0 - 2
Neutrophils absolute	3.8		10^3/µl	2.0 - 7.0
Lymphocytes absolute	3.2		10^3/µl	0.8 - 4.0
Monocytes absolute	0.4		10^3/µl	< 1.2
Eosinophils absolute	0.1		10^3/µl	<0.4
Basophils absolute	0.0		10^3/µl	0.0 - 0.1
Coagulation (Citrated Plasma)				
PT (COAG)	81		%	70 - 130

Note:

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(according to ISO 15189). External Quality Control available on request.

Techn. Validation by Med. Technologist (Supervisor of the Department)

Dr. Nehmat ElBanna Specialist Clinical Pathology (U/S) (DHA-P-0084548)

[^] non-accredited parameter

[&]quot;This parameter is affected by Biotin intake of >5 mg (RDI = 0.03mg)

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Analysis Flag Result Units Reference Range

Coagulation (Citrated Plasma), Continuation

INR (CALC) 1.20 0.85 - 1.20ratio

Proteins/Metabolites (Serum)

Lipid Studies in mg/dl (Recommendations for Adults from the American Heart Association)

Cholesterol, total (PHO) 150 100 - 199 mg/dl

Normal: 100 - 199, Desirable: < 200, Borderline: 200 - 239, High Risk: >240

Triglycerides (PHO) < 150

Normal: < 150, Borderline: 150 - 199, High: 200 - 499, Very High: >500

HDL Cholesterol, direct (PHO) 65.3 > 50

Increased Risk Men: < 40, Increased Risk Women: < 50, Normal: 50 - 60, Optimal: > 60

LDL Chol., Friedewald (CALC) 74 mg/dl

Optimal: < 100, Near Optimal: 100 - 129, Borderline: 130 - 159, High: 160 - 189, Very High: > 190

VLDL (CALC) 10.8 mg/dl < 30.0 Cholesterol/HDL (CALC) 2.3 Ratio 2.0 - 4.4

Normal: 2.0 - 4.4, Desirable: < 4.5, Borderline: 4.5 - 6.0, Increased Risk: > 6.0

Proteins/Metabolites (Serum)

Lipid Studies in mmol/I (Recommendations for Adults from the American Heart Association)

2.6 - 5.1 Cholesterol, total (PHO) 3.9 mmol/l

Normal: 2.6 - 5.1, Desirable: < 5.2, Borderline: 5.2 - 6.2, High Risk: >6.2

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Proteins/Metabolites (Serum), Continuation

Triglycerides (PHO) 0.6 < 1.7 mmol/

Normal: < 1.7, Borderline: 1.7 - 2.2, High: 2.2 - 5.6, Very High: >5.6

HDL Cholesterol, direct (PHO) 1.7 >1.3

Increased Risk Men: < 1.0, Increased Risk Women: < 1.3, Normal: 1.3 - 1.6, Optimal: > 1.6

LDL Chol., Friedewald (CALC) 1.9 mmol/l

Optimal: < 2.6, Near Optimal: 2.6 - 3.3, Borderline: 3.4 - 4.1, High: 4.2 - 4.9, Very High: > 4.9

VLDL (CALC) 0.28 < 0.77 mmol/l Cholesterol/HDL (CALC) Ratio 2.0 - 4.4 2.3

Normal: 2.0 - 4.4, Desirable: < 4.5, Borderline: 4.5 - 6.0, Increased Risk: > 6.0

Proteins/Metabolites (EDTA-Plasma)

Homocysteine (PHO) <12.0 8.7 umol/l

Please note:

We are using the cut-off value of 12 umol/l, which is used in European laboratories. In most of the U.S. laboratories, 15 umol/l is used as the cut-off value for normal levels of Homocysteine in adults.

A significantly increased level of homocysteine is considered an arteriosclerotic risk factor.

Various studies have shown that the risk of mortality will not be increased by results below 10; results from 10 to 15 increase the risk factor up to 1.9 times:

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results from 15 to 20 up to 2.8 times; results >20 up to 4.5 times.

A combined folic acid, vitamin B6 and vitamin B12 supplementation followed by homocysteine level monitoring is recommended.

Please note, that the reference range is valid only for serum/plasma which was separated within one hour after blood collection.

Proteins/Metabolites (Serum)

Albumin (PHO)	4.4	g/dl	3.5 - 5.0
Total Bilirubin (PHO)	0.60	mg/dl	0.2 - 1.1
Bilirubin direct (PHO)	0.00	mg/dl	0.00-0.20
Ferritin (TURB)"	21.1	ng/ml	15.0 - 150.0
Lipoprotein (a) (TURB)	22.4	nmol/l	< 75.0

Elevated lipoprotein (a) increases the risk for CHD in combination with other CHD risk factors. A moderately strong association of Lp (a) with CHD has been established independently of the classical vascular risk factors.

The risk of angina pectoris is increased with high concentration of Lp (a) and it is more significant if accompanied by high LDL-C concentration.

Treatment with Niacin reduces Lp (a) levels by 30-40% and yields other potential beneficial effects by reducing LDL cholesterol, total cholesterol, triglycerides, remnant cholesterol and by raising HDL cholesterol.

Ref: Borge G. Nordestgaard, M. John Chapman, Kausik Ray et al. for the European Atherosclerosis Society Consensus Panel: Lipoprotein (a) as a cardiovascular risk factor: current status.

Source: European Heart Journal: 2010; 31:2844-2853

6.4 - 8.3 g/dl **Total Protein (PHO)** 7.4

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Proteins/Metabolites (Serum), Continuation

Uric Acid (PHO) 4.7 2.6 - 7.2mg/dl

2012 American College of Rheumatology Guidelines for Management of Gout

- Serum urate level should be lowered sufficiently to durably improve signs and symptoms of gout, with the target <6 mg/dl at a minimum, and often <5mg/dl
- The task force panel recommended that the goal of urate lowering therapy is to achieve a serum urate level target at a minimum of 6 mg/dl in all gout case scenarios (evidence A).
- Moreover, the task force panel recommended that the target serum urate level should be lowered sufficiently to durably improve signs and symptoms of gout, including palpable and visible tophi detected by physical examination, and this may involve therapeutic serum urate level lowering to below 5 mg/dl (evidence B).

Source: Kanna D et al, Arthritis Care & Research 2012, 64, 1431 - 1446

Proteins/Metabolites (EDTA blood) HbA1c acc. to IFCC (HPLC) 29 - 42 35 mmol/moll HbA1c acc. DCCT/NGSP (HPLC) 5.3 4.8 - 6.0

107

The American Diabetes Association (ADA) suggests an HbA1c level of 7% DCCT (53mmol/mol IFCC) and below (reflecting an average glucose level of 154mg/dl)as the therapeutic target. However, more or less stringent glycemic goals may be appropriate for each individual (please refer to the ADA website: www.diabetes.org)

ADA defines the cut-off point for HbA1c in the diagnosis of diabetes at 6.5% DCCT (48 mmol/mol IFCC).

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Estimated avg. Glucose (CALC)

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(DHA-P-0084548)

mg/dl

PD Dr. med. habil. M. Jaksch **Associate Professor Medical Director** (DHA-LS-240710)

92 - 127

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Analysis Units Result Flag Reference Range

Please note that we have adjusted the unit according to the recommendation of the IFCC. Reference HbA1c (IFCC/NGSP). Source: www.ngsp.org/docs/IFCCstd.pdf

Please note:

Enzymos (Sorum)

Any condition that decreases mean erythrocyte age or increases Red Blood Cells turnover will affect the HbA1c test results regardless of the assay method used. In such cases, HbA1c should be interpreted with caution and alternative forms of testing should be considered.

Enzymes (Serum)						
ALT/GPT (PHO)	83	high	U/I	< 32		
AST/GOT (PHO)	42	high	U/I	< 33		
Alk. Phosphatase (PHO)	64		IU/L	39-118		
Source: Hay W.W., Levin M.J., Sondheimer J.M. and Deterding R.R. Current pediatric diagnosis and treatment (19th edition) 2009. New York: Lange Medical Books/McGraw Hill.						

GGT (PHO)	20	IU/I	5 - 39
LDH (PHO)	143	U/I	135 - 214

Endocrinology (Serum)				
TSH (ECL)"	4.85	high	mIU/I	0.30 - 4.20

We recommend to test for FT3 and FT4.

Important note:

Revised TSH levels:

The American Association of Clinical Endocrinologists (AACE), www.aace.com and the American Thyroid Association (ATA), www.thyroid.org have released guidelines to lower the TSH reference range to 0.3 - 3.0 mIU/l in order to

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not miss any latent hypothyreosis. The discussion is still controversal, however Freiburg Medical Laboratory recommends to consider TSH levels from 3.0 - 4.2 mIU/l as greyzone (borderline increased TSH) and definitely elevated TSH levels >4.2 mIU/l.

TSH values in pregnancy:

First Trimester: 0.03 - 3.00 mIU/l Second Trimester: 0.10 - 3.00 mIU/l Third Trimester: 0.20 - 3.50 mIU/l

(2.5th - 97.5th percentiles)

Source:

Guidelines of the American Thyroid Association for the Diagnosis and Management of Thyroid Disease During Pregnancy and Pospartum.

A. Stagnaro-Green et al. (2011) Thyroid 21:10;1081-1125

Vitamins (Serum, light-protected)

Vitamin B12 (ECL)" 350 pg/ml 200 - 1000

200 - 350 pg/ml borderline >350 - 400 pg ml acceptable >400 pg/ml normal

We recommend the following procedure:

Vitamin B12 holoTC MMA Interpretation

>400 pg/ml - - B12 deficiency excluded

<400 pg/ml normal normal still normal B12 status

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B12 deficiency (early phase) <400 pg/ml decreased normal

<400 pg/ml decreased increased functional B12 deficiency

holoTC = Holotranscobalamin MMA = Methylmalonic acid

Source:

Carmel R, Green R, Rosenblatt DS, Watkins.: Update on cobalamin, folate and

homocysteine.

Hematology Am Soc Hematol Educ Program. 2003:62-81

IMPORTANT NOTE:

Vitamin B12 deficiency.
DD: Nutritional effects? Vegetarian? Celiac disorder?

Atrophic gastritis? Intrinsic factor abs?

Vitamin D (250H), total(ECL)" 45.0 ng/ml 40 - 80

Deficient:<30 Borderline: 30 - 40 Desirable >40

Source: Wacker and Holick, Vitamin D. Effects on Skeletal and Extraskeletal Health and the Need for Supplementation

Nutrients 2013;5:111-148.

Important note:

The two most important forms for detecting Vitamin D deficiency are 25-OH-Vitamin D3 and 25-OH-Vitamin D2. Vitamin D3 ("human or animal form", cholecalciferol) is mainly produced in the skin after sun exposure but can also be taken up through food; Vitamin D2 ("plant form", ergocalciferol) can be obtained only from fortified foods and supplements. Both forms are metabolized in the liver to the inactive form 25-OH-Vitamin D and stored until needed, at which point 25-OH-Vitamin D is converted in the kidney to the active 1.25-(OH)2-Vitamin D. Please note that this active form does not reflect Vitamin D deficiency as it is tightly regulated by PTH, Calcium and

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Analysis

Remarks:

Result

Flag

Units

Reference Range

Phosphate. Therefore 1.25-(OH)2-Vitamin D testing is indicated in kidney disorders only (insufficiency, dialysis etc.).

The concentration of 25-OH-Vitamin D in serum reflects the stored supply of all Vitamin D (D3 and D2) and gives a good indication of the Vitamin D deficiency status of the patient. Normally, more than 95% of the measured 25-OH-Vitamin D is D3; Vitamin D2 can only be measured if Vitamin D2 supplements are being taken. Our newly evaluated test, compared with liquid chromatography/mass spectrometry (LCMS), measures the serum concentration of total 25-OH-Vitamin D (immunological method). Should you require a separate measurement of D3 and D2 levels, this can be done through our partners in Germany using LCMS.

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H. pylori Ag (EIA)

positive

qualitative

negative

Using monoclonal antibodies, this test is highly sensitive and specific.

Serology: Hepatitis B (Serum)

Hepatitis Bs Ag (ECL)"

0.5

COI

< 0.9

No sign of Hepatitis B infection.

Serology: Hepatitis C (Serum)

HCV Abs (ECL)"

0.08

S/CO

<1.00

No sign of Hepatitis C infection.

Autoimmune Diagnostics (Serum)

Thyroid Antibodies

TPO Abs (ECL)"

9.3

IU/ml

0 - 34

Detection frequency of TPO Abs.:

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Disease TPO Abs. positive Hashimoto Thyroiditis 60 - 90 % Primary Myxoedema 40 - 70 % Morbus Basedow 60 - 70 % Postpartum Thyroiditis 50 - 70 % Cytokine induced Thyroiditis 30 - 40 % Subacute Thyroiditis de Quervain < 5 % Autonomy of the thyroid gland approx. 5 % Healthy Person approx. 5 %

Thyroglobulin Abs (ECL)" 12.9 IU/ml <115

Detection frequency of TG Abs.:

Disease TG Abs positive Hashimoto Thyroiditis 30 - 40 % Primary Myxoedema 20 - 30 % Morbus Basedow 10 - 20 % Postpartum Thyroiditis 20 - 40 % Cytokine induced Thyroiditis 10 - 20 % Subacute Thyroiditis de Quervain 0 - 20 % Autonomy of the thyroid gland approx. 5 % Healthy Person approx. 5 %

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