To: **Vatsalya Maternity and Nursing Home-Virar(E)**
Ground Floor Mohak Chambers 2,
Near Rane Talav,Manvelpada,
Talav,Manvelpada,Virar East, Palghar
Maharashtra
Virar - 401305
Contact: 8830521446
Report Of: Mrs. PRATIBHA NAVNEETKUMAR SINGH
Pt. Contact: 6395836060

Sample ID	2300135640
Patient ID	1002358308
Collected on	21/07/2023
Received on	23/07/2023 18:19
Registered on	23/07/2023 16:17
Reported on	26/07/2023 08:45
Referred by	**DR.SUNITA R.MORE**

Hemoglobinopathy Screening

Patient Name: Mrs. PRATIBHA NAVNEETKUMAR SINGH
Sample Type: Whole Blood EDTA
Date of Birth/Age: 10/05/1979
Gender: FEMALE
City: MUMBAI
Method: High Performance Liquid Chromatography (HPLC)
Blood Transfusion History: No
Referral Reason or Clinical History:

About the test

Hemoglobinopathy screening by high performance liquid chromatography is a blood test that is used for detecting quantitative and qualitative abnormalities of hemoglobin (Hb), namely, Thalassemia and Structural Hb variants (e.g. HbS) respectively. The test helps identify individuals with these disorders so that they can receive timely and appropriate treatment and care. Antenatal diagnosis of these disorders allows measures to reduce the chances of the birth of an affected baby. It is also possible to screen the newborns for hemoglobinopathies using this approach, thereby decreasing the mortality & morbidity associated with conditions like Sickle cell disorder.

Test findings

Hb Fraction	Observed Value (%)	Expected Value (%)
HbF	0.3%	<2%
P2*	4.3%	<4.6%
HbA0	87.2%	85 - 95%
HbA2/HbE	3.3%	1.8 - 3.5%
HbD	Absent	Absent
HbS	Absent	Absent

*The mentioned P2 value from BioRad Variant-II HPLC system is equivalent of HbA1c value in BioRad D10 system

Interpretation

Chromatogram shows HbA2 on the higher side of normal (3.3%) (see comments below).
Hemoglobin, PCV and RBC count are reduced. Red cell indices are normocytic normochromic.

Suggestions

An HbA2 of <3.5 % is considered normal and a value of > 4% is considered highly suggestive of B-Thal trait. A recent study (Colaco S et al. Nature Portfolio Scientific Reports (2022) 12:5414) has however, shown that a significant number of patients (87%) with HbA2 between 3.0 to 3.9% are silent carriers of B-Thalassemia and may remain undiagnosed if one follows the cut off of 4% for diagnosis. It is therefore, recommended that spouses of such patients get screened for B-Thalassemia by HPLC or an equivalent technology, and if found to have an HbA2 between 3 to 3.9%, molecular genetic testing be performed to check for homozygosity/heterozygosity for B-Thalassemia in the fetus.

Verified by
Mr. Pradip Kadam
Incharge Biochemistry

Dr. A. Dasgupta MD, PhD,
Consultant Hematopathologist

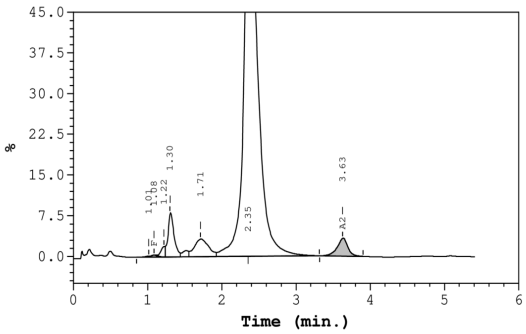
Patient Name : Mrs. PRATIBHA NAVNEETKUMAR SINGH | Sample ID : 2300135640

HPLC Findings

Patient Data
Sample ID: 2300135640
Patient ID:
Name:
Physician:
Sex:
DOB:
Comments:

Analysis Data
Analysis Performed: 07/24/2023 14:58:44
Injection Number: 4171
Run Number: 333
Rack ID: 0003
Tube Number: 1
Report Generated: 07/24/2023 15:55:50
Operator ID:

Analysis comments:



Peak Name	Calibrated Area %	Area %	Retention Time (min)	Peak Area
Unknown	---	0.1	1.01	2186
F	0.3	---	1.08	5312
Unknown	---	0.8	1.22	18097
P2	---	4.3	1.30	90568
P3	---	4.2	1.71	88933
Ao	---	87.2	2.35	1856745
A2	3.3	---	3.63	67996

Total Area: 2,129,837

F Concentration = 0.3 %
A2 Concentration = 3.3 %

Important Blood Indices (from CBC Analysis)

Parameters	Result	Reference Range	Units
Hemoglobin (Hb)	11.92 ⚠	12 - 15	g/dL
RBC Count	3.71 ⚠	3.8 - 4.8	x 10^6/µL
Hematocrit	34.90 ⚠	36 - 46	%
Mean Corpuscular Volume (MCV)	94.00	83 - 101	fL
Mean Corpuscular Hb (MCH)	32.10 ⚠	27 - 32	pg
Mean Corpuscular Hb Conc. (MCHC)	34.20	31.5 - 34.5	g/dL
RBC Distribution Width (RDW) (CV)	15.10 ⚠	11.6 - 14	%
RBC Distribution Width (RDW) (SD)	53.00 ⚠	39 - 46	fL

Notes:

1. Recent blood transfusions and iron deficiency can interfere with the results, repeat testing is recommended three months after the last blood transfusion. In case of iron deficiency, it is recommended to evaluate the result post-correction of iron deficiency.
2. Megaloblastic anemia can cause elevated HbA2 levels. A repeat assay is recommended after correction of VitB12 deficiency.
3. Mild to moderately elevated fetal hemoglobin (HbF) values are observed during pregnancy, hypoxia, chronic kidney disease, use of certain drugs,myelodysplastic syndromes (MDS), aplastic anemia and conditions of stress hemopoiesis.
4. Cases with borderline HbA2 levels (3.1-3.9%) could represent Silent Beta-thalassemia trait, or co-existent iron deficiency or Alpha-thalassemia in a case of Beta-thalassemia trait. They need to be investigated further by appropriate tests.
5. Confirmatory molecular tests for Beta-thalassemia traits and abnormal hemoglobin disorders (e.g. HbS, HbE, and HbD), followed by subsequent prenatal diagnosis (If required) are available at our centre.
6. The mentioned P2 value from BioRad Variant-II HPLC system is equivalent of HbA1c value in BioRad D10 system

Disclaimers:

1. The Hb-HPLC is a screening test that detects Beta-thalassemia and other hemoglobin variants. It does not identify Alpha-thalassemia and Silent Beta-thal-assemia carriers. DNA analysis is recommended to rule out Alpha-thalassemia and Silent Beta-thalassemia carriers.
2. The result must be interpreted in conjunction with the complete blood counts (CBC), VitB12 and iron profile of the individual.
3. Each sample received at Lilac Insights' processing centre is handled with the utmost sensitivity and care. All samples received on Sundays and National holidays are stored as per specific guidelines for the respective specimens and processed on the next day.
4. P2 peak in Bio Rad's Variant II HPLC platform represents glycated hemoglobin. It is elevated in uncontrolled diabetes.

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