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Clinical Significance of Elevated Fetal Hemoglobin in Adult Patients Hospitalized in "University Hospital Center Mother Theresa, Tirana"

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Abstract

Background: Fetal Hemoglobin (HbF $\alpha 2\gamma 2$) synthesis declines during the third trimester and is gradually replaced to adult hemoglobin (HbA $\alpha 2\beta 2$) resulting in less than 1% HbF in normal adults. In several situations during medical practice, abnormally high values of HbF represent a challenge to the clinicians.

Aims: The aim of this study is to create a profile of acquired and inherited disorders that lead to elevated values of HbF in adult patients, based on their electrophoretic pattern.

Study Design: This is a cross-sectional study.

Methods: Whole blood K2-EDTA samples were analyzed by Alkaline Gel Electrophoresis, Sebia Hydrasis. HbF presence was confirmed by alkali denaturation test. Data from patients hospitalized in "University Hospital Centre Mother Theresa" from January 2015 to January 2018 were analyzed and adult patients with abnormal HbF values were selected as our subject.

Results and Discussion: 124 patients present elevated HbF in Hemoglobin Electrophoresis performed in our laboratory. 55.6% (69 patients) had HbF above 10% and 44.4% (55 patients) had HbF less than 10%. InHbF>10% category, 7 patients (10%) had Thalassemia Major, 47 patients (68%) had Drepanocytosis (68% with normal HbA2, 32% with HbA2>3.5%). 15 patients (22%) showed HbF values 10-20% with possible diagnosis Hereditary Persistence of Fetal Hemoglobin (HPFH), (δ-β^-)-Thalassemia Carriers or Sardinian (δ-β) Thalassemia Heterozygotes. In HbF<10% category, 29 patients (53%) have Thalassemia Minor, 2 patients (4%) present

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borderline HbA2, which diagnosis should be determined between carriers of β-Thalassemia silent mutations, α-gene triple locus or δ-β-Thalassemia Heterozygotes and 24 patients (43%) have HbA2<3.2%. Such values might be due to Iron-Deficiency Anemia, δ-globin anomaly coexistence, Aplastic Anemia, Acute/Chronic Myeloid Leukemia, Myelodysplasia, HbH-β^{+}Thalassemia Trait, etc.

Conclusion: HbF is an important diagnostic parameter in various hematological disorders that should be known by clinicians. Elevated HbF with HbA2<3.2% requires further investigation.

Key words: Fetal Hemoglobin, adults, diagnostic profile