O-Arab Hemoglobinosis Fortuitous Discovery about a Case

**Abstract:** Hemoglobin O-Arab is a rare mutation in Hb, a genetic defect caused by the synthesis of hemoglobin which substitutes for normal hemoglobin A. Only the homozygous state is symptomatic, the latter are tolerated but associated with other hemoglobinopathies, it gives a severe clinical form. We report a case of heterozygous O-Arab hemoglobinopathy in a 40 years-old patient of Moroccan origin followed in endocrinology for a test of HbA1c in the context of his type 2 diabetes. HbA1c is performed by HPLC on ADAMS Arkray, showed the presence of a variant detected in the area of HbC. The electrophoretic study of Hb carried out on capillaries (Sebia) at alkaline pH, showed the presence of a variant of Hb in the heterozygous state migrating at the level of the A2 zone, identified as an Hb O-Arab. In Morocco, Hb O-Arab is an extremely rare mutant of Hb. In the homozygous state, is associated with other hemoglobinopathies, it can present in severe clinical form, hence the importance of the laboratory in the detection of couples at risk in order to offer genetic advice.

**Keywords:** O-Arab hemoglobinosis, HPLC, electrophoretic study of Hb.

**INTRODUCTION:**

Hemoglobin O-Arab is a rare mutation in Hb, it is characterized by the substitution of lysine by glutamic acid at position 121 of the b-globin chain (El-Hazmi, M. A. F., & Lehmann, H. 1980). A genetic defect caused by the synthesis of hemoglobin which substitutes for normal hemoglobin A. Only the homozygous state is symptomatic, the latter are tolerated but associated with other hemoglobinopathies, it gives a severe clinical form.

We report a case of Heterozygous O-Arab hemoglobinosis fortuitously discovered during the HbA1c assay in a patient hospitalized in the 3rd military hospital of Laayoune.

**OBSERVATION:**

- Patient: S.M male of Moroccan origin aged 40, admitted to endocrinology department for the management of unbalanced diabetes.
- Medical history: Type 2 diabetes for 1 year.
- Clinical examination: Without particularity.
- Biochemical assessment: Fasting blood sugar: 2.13 g / l, HbA1c = 6.8%

The HbA1c performed by HPLC on ADAMS Arkray showed the presence of a variant detected at the level of HbC (Figure 1).

For this purpose, an electrophoretic study of Hb was carried out on capillaries (Sebia) with alkaline PH showed the presence of a variant in the heterozygous state migrating to the level of the A2 zone, identified as an Hb O-Arab in association with Hb A2. The HbO-Arab is quantified at 36.6% (Figure 2).
DISCUSSION:

Among the basic examinations for the detection of hemoglobinopathies we find electrophoresis at alkaline pH on agarose gel or cellulose acetate and also that on capillary. O-Arab hemoglobin has been described in Saudi Arabia, Iran, United States, Jamaica, Bulgaria, Turkey, Cote d'Ivoire, North Africa, Cyprus and the entire Mediterranean basin (El-Hazmi, M. A. F., & Lehmann, H. 1980; Kazazian Jr, H. H. et al., 1978).

Morocco is a region of affection for HB mutations due to its geographic location and the ethnic origins of its population. Consanguineous marriages are tolerated by its culture and promote more or less severe clinical complications in families at risk. However, a few studies have shown the rarity of this variant in Morocco (Idrissi, S. E. et al., 2012).

In 2003, a study assessed the prevalence of hemoglobinosis in Morocco on a sample of cord blood from 1025 newborns. Fifty anomalies were recorded, ie a prevalence of hemoglobinopathies of 5%, including a single case of Hb O Arab (Benkirane Agoumi, N., & Sebar, A. 2003). This can be explained by the rarity of this beta mutant, but also by the possibility of confusion of Hb O-Arab with Hb C more common in our region.

CONCLUSION:

In Morocco, Hb O-Arab is an extremely rare mutant of Hb. In the homozygous state, is associated with other hemoglobinopathies, it can present in severe clinical form, hence the importance of the laboratory in the detection of couples at risk in order to offer genetic advice.

REFERENCES: