

The high prevalence of Prekallikrein deficiency among African Americans deserves further studies

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Dear Sir,

Prekallikrein (PK) deficiency seems common among African Americans.

The index patients presented by Hathaway, *et al.* in 1965 were the result of a marriage between a mulatto and a white female, both unknown heterozygotes for the mutation [1]. In 1974, Abilygaard *et al.* reported two African Americans with prekallikrein deficiency [2].

Subsequently, in 1985 Sollo, *et al.* in a table of their paper reported that 11 patients out of 22 were African Americans [3].

In 1987, Saito, in a Review on the contact phase of blood coagulation, stated that African Americans with PK deficiency were CRM- (cross reacting material negative) whereas Caucasians and Japanese were CRM+ [4]. An interesting observation if confirmed.

It would suggest that CRM- patients might be more predisposed to hypertension and its complications as compared to CRM+. The Caucasian and Japanese showed PK antigen of 14- 30% of normal. Actually, that should be termed CRM reduced, not CRM+ [4].

Recently it has been shown that the prevalence of PK deficiency is more than 10 times higher among African Americans as compared with the total non African American population of the USA [5].

Furthermore, it is likely that the discrepancy may be even higher since in some American papers the propositi are defined as Joe Doe or no ethnic background is listed and this could indicate that the patients might also be African Americans [6].

The role of PK in blood coagulation is not fully understood yet [7,8].

Patients with severe PK deficiency have no bleeding manifestations. The few bleeding episodes seen in a few patients were likely unrelated to the clotting defect and probable due to local causes [7].

On the contrary, PK deficiency has been often associated with hypertension and its complications [9].

This observation is important when one considers that hypertension and related disorders are frequent among African Americans [10-12].

It could be surmised that a relation between PK deficiency and cardiovascular diseases does exist.

Since no conclusive study on the incidence of cardiovascular disorders among the African- Americans has appeared so far, the significance of the association between PK deficiency and these diseases remains to be clarified. Environment could also play a role,

besides genetics. For environment we intend, nutrition, climate, urban life concentration, working places, air pollution, etc.

Does the increased prevalence of PK deficiency among African Americans play a role in the increased incidence of cardiovascular disorders? Available data seem to support this hypothesis. An ancillary problem that needs clarification is the one that concerns the type of PK deficiency. The deficiency present in African Americans appears to be a type 1 defect (concomitant decrease of PK activity and PK antigen). On the contrary, in other ethnic groups the defect is type 2 (low activity but higher antigen). This discrepancy was suspected, on the basis of a small series of patients, by Saito [4] and has to be confirmed since, if confirmed, it could have important biological implications.

This is more so, because genetic analysis has failed to show specific mutations associated with hypertension or thrombosis [13,14].

A long term suited study is indicated to solve the conundrum. The identification of a group of patients prone to hypertension and its complications would represent an important health progress.

The study should be a prospective one. Comparing PK deficient patients with unaffected family members has been recently done for another factor of the contact phase, namely FXII [15,16].

Conflict of interest

The authors declare that they have no conflict of interest.

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Received: February 14, 2020; Accepted: February 21, 2020; Published: February 24, 2020

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