SUMMARY

This descriptive, cross-sectional study was aimed at determining the relationship between sCD36 (a cell adhesion marker), levels of % Hb F, malaria parasite density (MPD), haematological parameters and disease severity in adults with SCA in Kano.

One hundred and forty subjects with SCA were purposively selected in the steady state and vaso-occlusive crises respectively in a hospital setting and compared with 70 apparently healthy age and sex-matched controls from the community. Ten millilitres of venous blood was obtained to determine FBC, % Hb F, sCD36 levels and MPD. Assay for sCD36 was done using HUMAN SOLUBLE CD36 ELISA KIT. Complete blood count was obtained using Auto haematology analyzer, % Hb F was estimated by modified Betke’s method and sodium metabisulphite was used for sickling test. A questionnaire was used to obtain socio-demographic and clinical data. Data were analyzed to provide descriptive and inferential statistics, using STATDISK inc., USA and P-value ≤ 0.05 was used to define statistical significance.

The mean age (±SD) for the steady state group was 25.1 ± 6.2 years with a male: female ratio of 1:1.1 and the mean age for the VOC group was 23.9 ± 5.5 years, with a male: female ratio of 1:1.2 while the mean age for the control group was 24.3 ± 4.8 years with a male: female ratio of 1:1.1. The mean value of sCD36 was significantly lower (P < 0.01) in the steady state group (22.3 ± 8.7 ng/ml) than that in the VOC group (38.4 ± 9.8 ng/ml), while it was significantly lower in the controls (14.8 ± 5.1 ng/ml) than in the steady state (P < 0.01). The mean value of % Hb F was significantly higher (P < 0.01) in the steady state (3.9 ± 1.6%) than in the VOC group (3.2 ± 1.4%), which was in turn, significantly higher (P < 0.01) than in the controls (0.9 ± 0.4%). A direct and
significant correlation was observed between sCD36 and WBC count \( (r = 0.7410; P < 0.001) \), as expected, in the steady state but not in the controls \( (r = 0.3480; P < 0.05) \). A statistically significant inverse correlation was observed between sCD36 and % Hb F in the steady state group \( (r = -0.5406; P < 0.001) \) but not in the controls \( (r = 0.1451; P = 0.087) \). In the steady state group, a statistically significant direct correlation was observed between sCD36 and severity score \( (r = 0.5808; P < 0.001) \), but an inverse correlation between % Hb F and severity score \( (r = -0.5419; P < 0.01) \). No such relationship was observed among the parameters in the control group. No statistically significant correlation was observed between sCD36 and malaria parasite density in the steady state group \( (r = 0.1062; P > 0.05) \) or in the control group \( (r = 0.0912; P = 0.095) \).

Complications like ACS, stroke, retinopathy and AVN of the femoral head were observed to be associated with high sCD36 levels in the steady state group. A multiple logistic regression modeling revealed that WBC count predicted the most significant odds \( (OR = 3.87; P < 0.001) \) for sCD36 positivity, followed by severity score \( (OR = 2.81; P < 0.05) \), reticulocyte count \( (OR = 2.77; P < 0.001) \), % Hb F \( (OR = 2.12; P < 0.001) \) and PCV \( (OR = 2.11; P < 0.001) \), while parameters like age, sex, MPD and BMI did not.

In conclusion, the level of sCD36 is a marker of disease severity and may predict the occurrence of vascular-related complications of adults with SCA in Kano. The white cell count alone may be used as a surrogate marker of sCD36 level in these subjects but not in controls.