for Neurofibromatosis 1. This is likely to have occurred as a de novo mutation as no other family members are affected.
Despite the common occurrence of both these genetic disorders, a literature search found there has only been one previous published case report worldwide of a patient with both Sickle Cell disease and Neurofibromatosis Type 1[3]. In this case report we describe the patient's clinical course and management to date, and consider the need to look for additional diagnoses in patients with multiple complications.

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5613312 PLASMATIC MICROPARTICLES AS POTENTIAL BIOMARKERS IN THE PREVENTIVE DIAGNOSIS OF BETA THALASSEMIA

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Background: Plasmatic microparticles (MPs) are submicron (0.1–1 μm) extracellular vesicles that shed during plasma membrane remodeling in response to cell activation and apoptosis. Over the years, microparticles have evolved from their initial status being a cellular discharge mechanism, by which the cell got rid of unwanted materials, they are now considered as functional units produced in a regulated manner and having an important role in the maintenance of homeostasis. However, MPs also participate in the pathophysiology of several diseases such as beta thalassemia. It is a hemoglobinopathy characterized by reduced or absent synthesis of the beta-globin chain resulting in the excessive accumulation of unpaired alpha-globin chains which causes structural and functional alterations of the cytoplasmic membrane of thalassemic red blood cells. These alterations induce membrane budding and the release of MPs, which increases the risk of thrombotic complications observed in beta thalassemia patients.
Aims: Therefore, our study suggests the research for plasmatic microparticles as potential cellular biomarkers and the establishment of a new innovative and predictive diagnosis strategy in order to avoid the thrombotic complications of beta thalassemia.
Methods: Blood samples were taken from polytransfused beta thalassemia major patients clinically diagnosed at the National Bone Marrow Transplant Center in Tunis and from healthy donors. A cellular study was carried out by flow cytometry in order to quantify the apoptotic MPs derived from erythrocytes, platelets and endothelial cells using different antibodies and specific fluorescent dyes.
Results: Our results showed a statistically significant increase in the number of apoptotic MPs, which suggests a high rate of apoptosis in the cells of the patients compared to those of the healthy controls. We also found that MPs derived from erythrocytes and endothelial cells were clearly elevated in beta thalassemia patients, suggesting their potential contribution to thrombotic risk.
Conclusion: This discovery makes it possible to consider MPs as potential cellular biomarkers for preventive diagnosis in beta thalassemia.

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5613514 PAVING THE WAY FOR GENETIC MEDICINE IN SUB-SAHARAN AFRICA: A REPORT ON THE FIRST GENETIC COUNSELLING PROGRAM IN THE REGION

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Genetic disorders, chiefly sickle cell disease (SCD), pose a significant public health and developmental challenge in the sub-Saharan African region and genetic counsellors have a unique role to play in addressing this critical challenge in the region. Paradoxically, as at 2021, there were no postgraduate training programmes in human genetics in West Africa. Thus, whereas there were thousands of registered Genetic Counsellors in North America, there were about 25 in Africa, all in South Africa. In January 2022, the West African Genetic Medicine Centre (WAGMC) of the University of Ghana (UG), West Africa, inaugurated the first genetic counselling program in the sub-region. The two-year full-time accredited program aims to provide cutting edge training in the science of genetics while fostering a strong foundation in counselling. Graduates from the 2-year program further undertake one-year internship to be licensed as genetic counsellors by the Ghana Psychology Council, which is the body responsible for ensuring ethical genetic counselling practice in Ghana. In Ghana, where about 14,000 babies are born with SCD every year and the incidence of other genetic disorders keep rising, it is the goal of current genetic and genomic initiatives in the region to better understand these conditions and help drive preventive and precision medicine. This requires the contributions of genetic counsellors. Therefore, the new MSc. Program in Genetic Counselling holds vast opportunities for the first cohort and all prospective students on the program, despite the anticipated challenges. These include limited genetic testing facilities as well as resources for integrating genetic counsellors into the clinical and public health systems of Ghana and other countries in the sub-region.

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5558131 GENETICS OF IRANIAN ALPHA THALASSEMIA PATIENTS; COMPREHENSIVE ORIGINAL STUDY

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Background: Alpha thalassemia is the most prevalent monogenic gene disorder in the world and especially in Mediterranean countries. In the current hematological phenotype of patients with different genotypes, and also the effect of missense mutations on the protein function and stability were evaluated in a large cohort study.
Methods: One thousand five hundred and and sixty subjects were participated in the study and divided into two groups; 259 normal subjects and 1301 alpha thalassemia carriers. Genomic DNA was extracted and analyzed using ARMS PCR, Multiplex Gap and direct sequencing. The effects of single nucleotide change on the protein function and stability were predicted by free available databases of human polymorphisms.
Results: Sixty-three different genotypes were seen in the patients. The more prevalent was heterozygote form of -α3.7 (41.4%) followed by -α3.7 homozygote(11.6%) and - -MED(3.8%). The significant differences were seen in mean hemoglobin level [F=20.5, p<0.001] between the Alpha globin genotypes, when adjusted for gender. Moreover, 28 different mutations were found in our study. A significant relationship was seen between ethnicity and the alpha globin mutation frequency X2 (df;8) = 38.36, p <0.0001).
Conclusion: Different genotypes could be displayed as different phenotypes. The mutation frequency distributions in our region is different from other parts of Iran. Significant differences are seen in the spectrum of mutation frequency between various ethnicity. Finally, some missense mutations maybe did not considerably effect on the proteins and could be a neutral mutations.
Keywords: Alpha Thalassemia, Genotype, Phenotype, Southwest of Iran

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5589865 PRELIMINARY FINDINGS FROM THE FOLLOW-UP OF PREGNANT SICKLE CELL DISEASE PATIENTS IN LUANDA, ANGOLA.

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Background: In Angola, the prevalence of the Sickle Cell Disease (SCD) is almost 2%, and the carriers reach 21% of the population. Although its presentation tends to be very heterogeneous, chronic hemolytic anemia,

frequent painful crisis and extensive organ damage are common features of these patients. Pregnancy in SCD patients is associated with an increase in severe outcomes, namely, high risk of eclampsia and pre-eclampsia, stroke and even death. Therefore, it is crucial to maintain continuous medical surveillance during pregnancy, especially in women with previous strokes. Moreover, health services in low- and middle-income countries are generally not prepared to follow these patients.
Aims: We aim to present the preliminary findings from the cohort study conducted at the Lucrecia Paim Maternity Hospital (Luanda, Angola), that aims to determine pregnancy complications in SCD women, especially those responsible for maternal death, and, by supporting the obstetric consultations in this hospital, contribute to the reduction of mortality and morbidity rates.
Methods: Pregnancy monitoring includes analysis of clinical history and incidents (number of hospitalizations, blood transfusions, strokes and other clinical complications), hematological and biochemical analysis, transcranial doppler to assess cerebral hemodynamics and genetic analysis (confirmation of the diagnosis, genotyping of four SNPs in the β-cluster to assess the haplotype, and evaluation of the presence of the 3.7kb deletion of the α-globin gene).
Results: To date, 61 women are being followed in the obstetric consultations, with ages from 18 to 40 years old (mean 26.1±5.4). There are no records of previous strokes, although 83.9% of the patients have been previously transfused (47 out of 56), 98.2% have been hospitalized (55 out of 56) due to SCD complications and 19.6% (10 out of 54) had at least one miscarriage. At the first appointment, total hemoglobin values ranged from 4.70 to 10.40 g/dL (n=52, mean 7.18±1.30), erythrocytes from 1.46 to 5.42 x1012/L (n=52, mean 2.46±0,72), white blood cells count from 1.67 to 61.88 x109/L (n=51, mean 12.20±8.69), platelets from 24.2 to 710.0 x109/L (n=52, mean 272.2±155.9), and lactate dehydrogenase (LDH) from 263.3 to 2836.7 (n=50, mean 708.1±450.46).
The CAR/CAR haplotype, which is usually associated with a more severe prognosis, is the most prevalent in this population (57.7%, 30 out of 52), followed by the CAR/SEN haplotype (25.0%, 13 out of 52). In this population, 17.3% (9 out of 52) are homozygous for the 3.7kb α-thalassemia deletion and 44.2% (23 out of 52) are carriers. This deletion influences hematological and clinical aspects of sickle cell disease patients, resulting in less severe phenotypes.
TCD time-averaged mean of the maximum velocity (TAMMx) at the middle cerebral arteries ranged between 41 to 132 cm/s (n=61, mean 84cm/s) and peak systolic velocity (PSV) from 61 to 180 cm/s (mean 129 cm/s). At the basilar artery level, TAMMx obtained were between 29 to 102 cm/s (n=60, mean 52 cm/s) and PSV ranged from 43 to 141 cm/s (mean 78 cm/s).
Summary - Conclusion: The main goal of this project is to study pregnancy-related complications and outcomes by giving support to an Angolan cohort of SCD pregnant women. We also intend to obtain TCD reference values of cerebral blood flow velocities in pregnant women with SCD as a risk predictor of vascular events as there are no values in the literature for this specific population.

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5610614 ASSESSING PHYSICAL, SOCIAL AND EMOTIONAL IMPACT OF SICKLE CELL DISEASE IN PORTUGUESE PATIENTS: AN OBSERVATIONAL, MULTICENTER STUDY (ASCEND)

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Background: Sickle cell disease (SCD) is a chronic, multisystem autosomal recessive blood disorder that is characterized by painful episodes caused by vaso-occlusion. SCD patients can face social, economic and academic challenges, as well as barriers to accessing quality heath care. Evidence about the impact of SCD and related treatments on the lives of patients is lacking, with a broad definition of health as a combination of physical, mental and social well-being. The purpose of this observational study is to characterize the physical, social and emotional impact of SCD on adult patients with confirmed diagnosis and to characterize patient pathway in the healthcare system.
Objectives: The primary objective of ASCEND is to characterize the physical impact of SCD on patients, through collection of PROs that will assess the impact of pain and disease complications in patients' QoL. As secondary objectives the study aims to characterize SCD patients' demographics and clinical history, as well as to describe the social and emotional impact of SCD on patients; to describe SCD patient pathway in the healthcare system. In this abstract the authors intend to describe the results obtained for QoL assessment through PRO questionnaires
Methods: ASCEND is non-interventional cross-sectional study of 2 cohorts of SCD adult patients with SCD. The study sample is 200 (recruited by hospital sites) + 50 patients (recruited by patient association). PRO questionnaires include both EQ-5D-5L and ASCQ-Me (Pain Episodes Frequency and Severity). Portuguese patients and Social Studies investigators participated in the validation process.
Results: Study recruitment is terminating in the current week as 194 have been included already. We expect to have QoL results evaluated through EQ-5D-5L and ASQC-Me for 200 patients by mid September 2022, in due time to be presented in ASCAT.
Conclusions: Conclusions will be elaborated upon data analyses

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5597349 VITAMIN C AND VITAMIN K2 AS RISK FACTORS FOR OSTEOPOROSIS IN CHILDREN WITH B- THALASSEMIA

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Background: Osteoporosis and related fractures have emerged as an important cause of morbidity in patients with B-thalassemia. Many risk factors are attributed to development of Osteopenia and osteoporosis among those patients. Moreover a few studies reported the relation between the osteoporosis and vitamin C and vitamin K2.
Aim: The aim of this study was to investigate the relation between the levels of vitamin C and vitamin K2 and risk of development of osteoporosis in children and adult with Beta-Thalassemia major.
Methods: This cross-sectional study was carried on 66 β-thalassemia patients and thirty-three age and sex matched control. Their mean age was 15.78±3.9 years. Complete physical examination was performed for all patients in addition to assessing anthropometric measurements. All patients were subjected to routine laboratory investigations, in addition to Vitamin K2, Vitamin C and 25-OH- cholecalciferol assay using ELISA were performed. Bone Mineral Density (BMD) was measured by the Dual Energy X-ray Absorption (DEXA) scan method.
Results: the mean vitamin K2 level was significantly lower in patients compared to controls (146.08 ± 85.5 ng/l and 277.78 ± 194.6 ng/l respectively. also, the mean vitamin C level was significantly lower in patients compared to controls (86.27 ± 55.34ng/l and 102.98 ± 75.93 ng/l respectively. Osteopenia and osteoporosis were present in 30.3% and 36.4% of patients respectively compared to 0% in controls where the mean BMD in lumber spine (L1-L4) and femoral neck on both sides was significantly lower in patients compared to controls. There was significant positive correlation between vitamin k2 level and each of body mass index, BMD of (lumber spine, left femur and total hips).
Conclusion: Bone mineral density was significantly impaired in patients with b- thalassemia major. Patients with reduced levels of vitamin K2 and vitamin C are at higher risk of developing osteopenia and or osteoporosis.

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