

ULTRASOUND EVALUATION AND JOINT SCORING IN MILD HEMOPHILIA A: A SINGLE-CENTER CASE SERIES FOR THE IDENTIFICATION OF SUBCLINICAL ARTHROPATHY

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Background. Mild Hemophilia A (FVIII 5-40%) is often underestimated, yet patients remain at risk for chronic arthropathy due to subclinical bleeds and trauma. Since the HJHS (physical exam) often misses early damage, this study uses Point-of-Care Ultrasound (POCUS) to detect early synovial and osteochondral changes. The goal is to correlate clinical data, including Body Mass Index (BMI), with ultrasound findings to better assess true joint health.

Materials and Methods. A cross-sectional analysis was conducted on a series of patients with mild hemophilia followed at our Institution in the last year. For each patient, the primary target joints (elbows, knees, and ankles) were evaluated. The HJHS was administered to quantify functional joint impairment. BMI was recorded for all participants to evaluate the impact of body weight on joint health. POCUS scans were performed using the HEAD-US (Hemophilia Early Arthropathy Detection with Ultrasound) protocol. Correlation was assessed between baseline clotting factor levels, BMI, HJHS, and the total HEAD-US score.

Results. A total of 36 mild patients are currently followed at our center; 23 male patients underwent HJHS and HEAD-US within the last 12 months. The median age was 40.6 years (range 12-65) and the mean BMI was 25.73 kg/m². The median baseline factor level was 10% (range 5-24%). The median ABR was remarkably low (0.4). The me-

dian HJHS score was 7.23 (range 0-16). HEAD-US scoring revealed structural abnormalities in 56.5% of the evaluated patients (13 pz). Notably, within a subgroup of 13 patients particularly susceptible to joint changes, 4 (33.3%) presented both osteostructural alterations and a BMI >25 kg/m². Mild synovial hypertrophy was detected in 23% of cases, and significant cartilage thinning was observed in 69% of subjects.

Discussion. Our findings demonstrate that mild hemophilia does not preclude chronic arthropathy, which is more accurately detected by HEAD-US than by HJHS. The significant correlation between age and HEAD-US scores, alongside the impact of BMI >25 on structural damage, suggests that mechanical stress and cumulative trauma, rather than factor deficiency alone, are the primary drivers of joint degradation in this cohort. Consequently, the presence of osteostructural damage in overweight patients emphasizes the critical role of weight management. Integrating routine ultrasound into clinical follow-up allows for a more personalized therapeutic approach.

Conclusions. Systematic HEAD-US evaluation facilitates pre-clinical arthropathy diagnosis in mild hemophilia. Monitoring should integrate periodic imaging and metabolic assessments, such as BMI, to ensure a proactive, personalized strategy that preserves long-term quality of life.