FRI0201

HEALTHY INDIVIDUALS AT INCREASED RISK FOR AXIAL SPONDYLOARTHRITIS WOULD CONSIDER USING MEDICATION IN A PREVENTIVE SETTING

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Background: Axial spondyloarthritis (axSpA) is a chronic inflammatory disease with a diagnostic delay of 5–10 years. Treating the disease in the pre-clinical phase before the disease becomes clinically manifest is not yet clinical practice, although initiatives to diagnose axSpA in an early phase such as the SPondyloArthritis Caught Early (SPACE) cohort and the pre-SpA cohort might enable early or even pre-clinical detection and thus treatment of SpA. Possibly, very early treatment might be able to stop the disease process hereby preventing the development of irreversible structural damage or, ideally, even disease onset.

Objectives: To study the willingness of individuals with an increased risk for SpA to use medication in a preventive setting.

Methods: Healthy first degree relatives of HLA-B27 positive axSpA patients from the Pre-SpA cohort completed a questionnaire consisting of different hypothetical scenarios varying in 1) the risk of developing axSpA, 2) the occurrence and nature of possible side effects, and 3) the effectiveness of the medication. Moreover, the survey included multiple choice questions about participants' perception towards SpA and preventive medication.

Results: The response rate was 81.5% (106 out of 130). Figure 1 shows the comparison of the different scenarios. The percentage of individuals willing to use preventive medication causing no side effects varied between 63.2% (with 30% SpA risk) and 91.5% (with 70% SpA risk). The percentage of individuals willing to use this medication varied between 27.4% (with 30% SpA risk) and 51.9% (with 70% SpA risk) if the preventive medication would possibly cause infections. This percentage was 32.1% (with 30% SpA risk) if the medication would possibly cause mild side effects. The percentage of individuals willing to use preventive medication that would cause a delay in onset of SpA of 10 years (with 70% SpA risk) was 72%. The willingness of individuals to use preventive medication was negatively influenced by their own risk assessment of developing SpA ($B=0.16$, $p=0.001$) and was not primarily influenced by costs (0.9%) or the route of administration (0%).

Conclusions: 1. Individuals at increased risk for SpA would consider using preventive medication.

2. Their willingness to use preventive medication is largely influenced by the formal likelihood to develop SpA, by their own perception of the disease and by the likelihood of side effects.

3. Their willingness to use preventive medication is not primarily influenced by costs and the route of administration.

Disclosure of Interest: None declared

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FRI0202

INERTIAL MOTION SENSORS USING THE VIMOVE® SYSTEM IS A VALID METHOD TO ASSESS SPINAL MOBILITY IN PATIENTS WITH AXIAL SPONDYLOARTHRITIS

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Background: Spinal mobility measures are recommended for the assessment axial spondyloarthritis (axSpA). Simple, low-tech tools as goniometers and metric tapes are commonly used, resulting in high variability and low accuracy of the measurements. More recently, advanced technological systems have facilitated the measurement of human mobility with high precision, such as motion capture systems like the UCOTrack and its index, the UCOASMI, validated for use in axSpA patients. The development of inertial measurement units (IMUs) has produce wearable, cheap and self-contained devices that can measure motion usually using triads of gyroscopes, accelerometers and magnetometers. Some of the mobility angles measured using motion capture systems can also be measured using IMUs placed in pre-defined anatomical locations.

Objectives: To evaluate the validity of IMUs using the ViMove® system for measuring spinal mobility in patients with axSpA.

Methods: We recruited 20 patients with axSpA from the HU Reina Sofia of Cordoba. The UCOTrack was used as the gold-standard system to obtain mobility measurements. UCOTrack measurements were compared with ViMove® measurements, a system that includes two IMU sensors located in the lumbar spine (pelvis and L1- figure 1) or in the neck (occiput and T3). Conventional metrology measures and patient-reported outcomes were also collected.

Results: The table presents the measurements obtained at the L1 and occiput levels. UCOTrack and ViMove® measurements were very similar, with Root

Mean Square Errors (RMSE) less than 10° and Variation Coefficients (VC) less than 10%. We found high intraclass correlation coefficients (ICC) between the two systems (0.84–0.99). Measurements with both systems correlated strongly and significantly with BASMI (0.60–0.92) and BASFI (0.51–0.84), but not with BASDAI.

Type of measurement	UCOTrack®	ViMove®	VC	RMSE	ICC
Lumbar (L1)					
Anterior flexion	103.6 (17.3)	99.0 (17.4)	4.4%	6.57	0.93
Extension	24.6 (9.3)	22.3 (9.6)	9.4%	4.22	0.90
Left rotation	27.7 (10.4)	27.4 (11.0)	1.1%	1.83	0.99
Right rotation	26.8 (10.4)	25.3 (10.1)	5.6%	3.14	0.95
Left lateral flexion	70.7 (13.9)	72.6 (16.6)	2.7%	8.71	0.84
Right lateral flexion	68.4 (15.4)	67.6 (16.7)	1.2%	7.87	0.88
Cervical (occiput)					
Flexion	50.9 (12.5)	52.3 (12.8)	2.8%	2.73	0.98
Extension	43.1 (16.0)	39.3 (14.4)	8.8%	5.44	0.94
Left rotation	66.1 (20.2)	63.8 (20.5)	3.5%	9.13	0.90
Right rotation	62.1 (19.2)	64.7 (21.7)	4.2%	9.72	0.89
Left lateral flexion	34.3 (15.8)	32.9 (15.5)	4.1%	7.77	0.88
Right lateral flexion	34.7 (15.9)	34.0 (16.3)	2.0%	7.10	0.90

All measures are expressed in degrees.

Conclusions: The ViMove®, an IMU based system, is a valid method to assess spinal mobility in patients with axSpA. There was excellent agreement between ViMove® and UCOTrack and a strong correlations with conventional metrology (BASMI) and patient-reported physical function (BASFI). IMU systems are more feasible than motion capture systems because they do not require a motion laboratory and results can be obtained more quickly in an objective and quantitative way. The ViMove® system has potential for use both in the clinical and research setting and further evaluation of its reproducibility and sensitivity to change should be undertaken.

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