PRELIMINARY RESULTS IN THE QUANTIFICATION OF PHYSICAL ACTIVITY AND THE RELATIONSHIP WITH TROUGH LEVELS DETERMINED BY MYPKFIT

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1. Introduction and Objectives:

Adopting a physically active lifestyle in addition to exercising may offer additional therapeutic opportunities to people with hemophilic arthropathy. According to the World Health Organization (WHO) and expert recommendations, adults aged 18–64 should accumulate at least 150 minutes a week of moderate-intensity aerobic physical activity and perform 10,000 steps a day. However, to reduce the risk of bleeding, the volume and intensity of physical activity that people with haemophilia can perform it is conditioned by the trough levels.

The objective of this study is to quantify the amount of daily physical activity performed by haemophilia patients in prophylaxis treatment controlled by myPKFiT.

2. Materials and Methods:

- 7 Adult haemophilic patients from the Haemostasis and Thrombosis Unit of the Hospital La Fe, Valencia, Spain were recruited.
- The Fitbit Charge HR activity wristband was used to quantify the amount and level of daily physical activity.
- To adjust the prophylaxis treatment, myPKFiT tool was used.
- myPKFiT (Baxter Healthcare Corporation) is a web-based application based on Bayesian analysis developed to predict pharmacokinetic parameters in patients with hemophilia A.
- This software needs only two well-selected blood samples to estimate the individual PK parameters.

3. Results:

In Table 1 the results are shown:
- Average daily steps were 10,615.13 and the average time per week in moderate and intense activities was 504 minutes.
- The trough levels were established between 3-5 international units.
- No patient reported any bleeding.

Table 1: Results of anthropometric data, haemophilic arthropathy and activity data from fitbit charge HR (Daily average of the first 30 days of follow up).

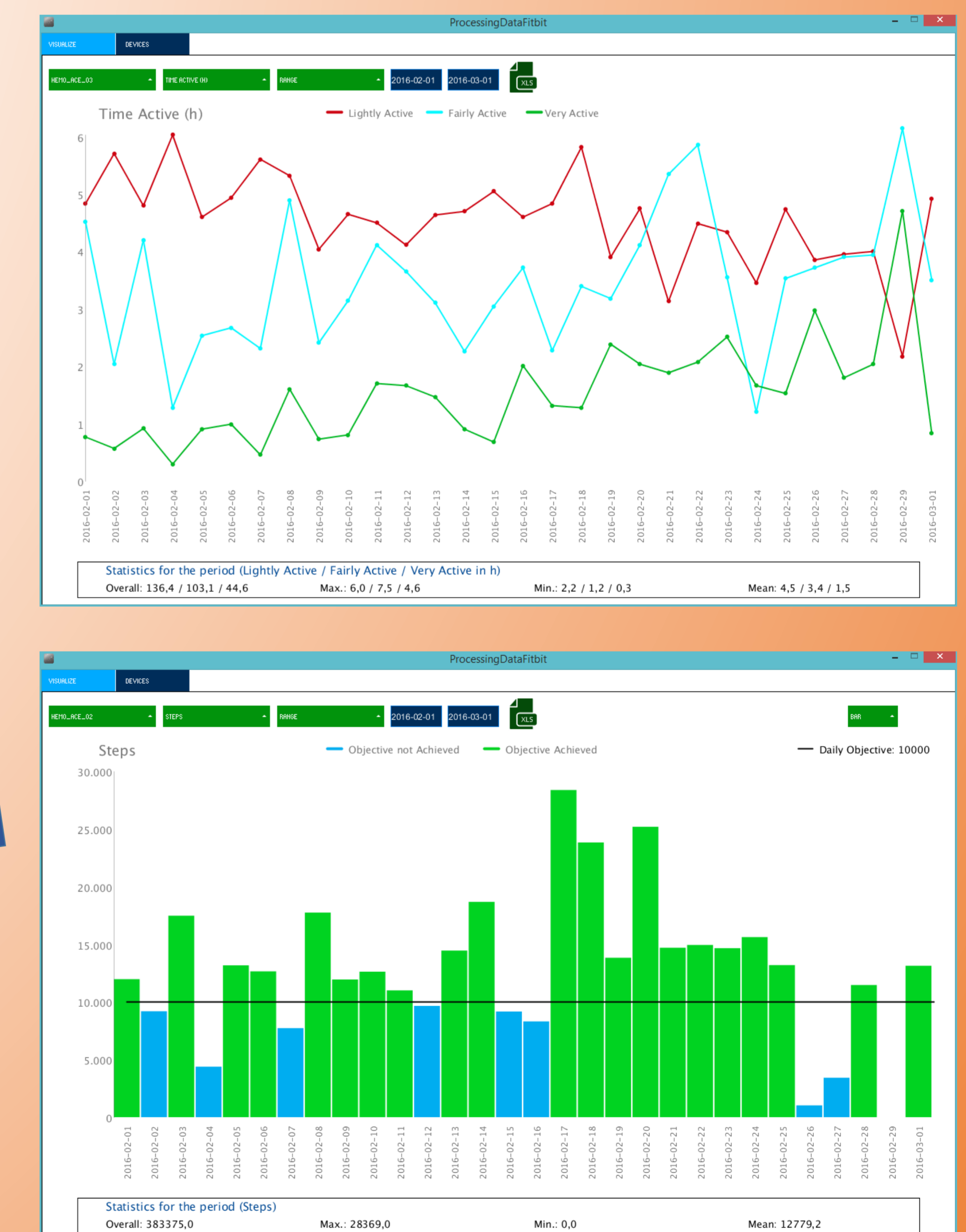|	Mean	SD	Min	Max
Anthropometric data				
Age (years)	37.00	8.23	28.00	49.00
Weight (Kg)	84.77	29.36	67.20	150.20
Height (m)	1.75	0.11	1.54	1.85
IMC (kg/m2)	27.56	8.28	20.69	44.85
HJHS Score				
Elbows	4.14	5.40	0.00	12.00
Kness	1.50	3.18	0.00	8.50
Ankles	5.43	3.03	1.50	9.50
Activity data				
Calories	3187.18	440.19	2644.40	3841.57
Activity Calories	1667.91	442.46	1263.53	2423.27
Steps	10615.13	2814.10	6435.87	14681.03
Distance (km)	7.78	2.01	4.88	11.09
Sedentary (min)	854.78	233.60	582.90	1171.23
Lightly Active (min)	267.71	66.19	177.53	383.63
Fairly Active (min)	43.46	46.04	15.17	142.87
Very Active (min)	28.60	14.77	13.23	54.53

4. Conclusions:

- The group of patients studied, with trough levels of 3-5 international units, are physically active.
- Despite haemophilic arthropathy they are able to comply with the recommendations of experts and WHO, without the risk of bleeding.
- myPkFit is an adequate tool to control trough levels in haemophilic patient to ensure an adequate level of factor that allows a safely exercise.

Bayesian Pk Estimate by MyPKFiT

Patient data monitoring with Fitbit Charge HR.

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