

Pain threshold, central sensitization and relationship with joint dysfunction in patient with haemophilia

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1.-Introduction:

- The repetitive intraarticular bleeding in patients with haemophilia provokes chronic joint damage characterized by pain, stiffness and deformity, causing a severe disability associated with a high economic cost.
- The current approach of generic chronic pain states that there would be no direct relationship between joint damage and pain. The mechanisms at the nervous system, such as central sensitization might modulate the joint pain.

The aim of this study is to determine the relationship between pain threshold (PT), the central sensitization and relationship with joint dysfunction in haemophilia patients.

2.-Materials and Methods:

- The Haemophilia Joint Health Score (HJHS) are used for joint dysfunction assessment.
- The PT was measurement at level of both ankles and knees with pressure algometry (HF-500 Digital Push Pull Gauge Force, M&A Instruments Inc,USA) expressed in newton (N).
- For central sensitization, the PT of wrist it was evaluated. The mean of PT in ankles and knees was used to compare with PT in wrist. For association and regression analysis, the total value of PT in ankle and knee were totalled.

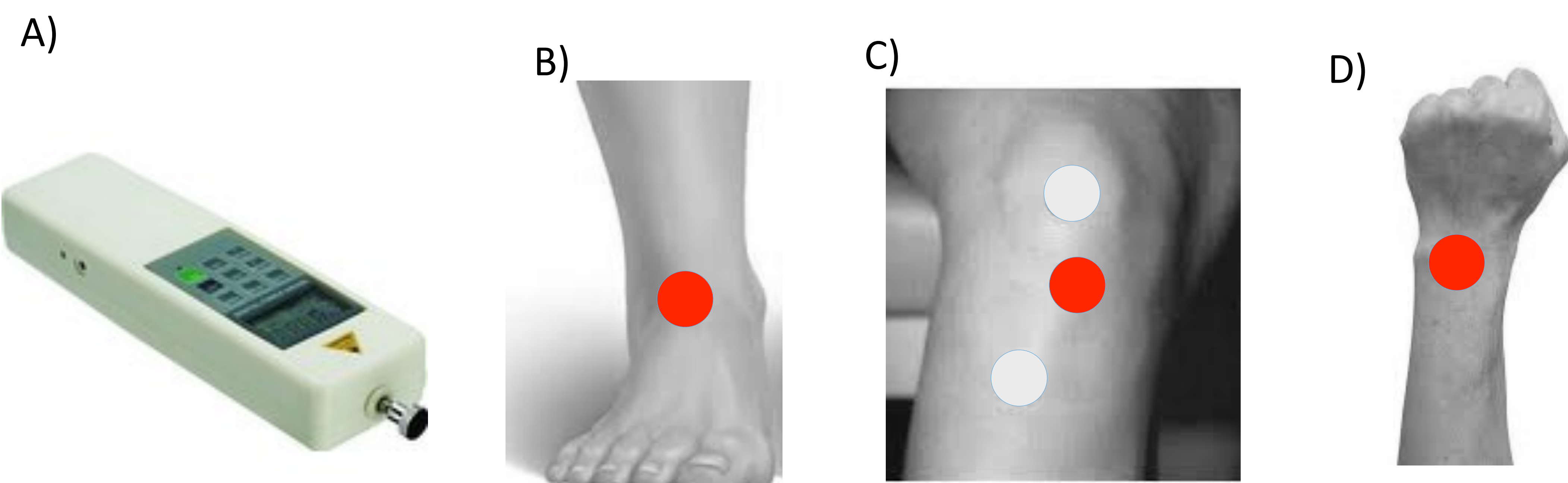


Figure 1. A) Digital Push Pull Gauge Force. B) Ventral aspect in the middle of the joint line between the anterior tibial tendon and the extensor hallucis longus tendon. c) Anteromedial part at the level of the joint line beside the patellar tendon, with knees at 90° of flexion. D) Normal site (radioulnar joint) at wrist.

3.-Results:

Fourteen patients with severe haemophilia were recruited (Age: 25 ± 5; BMI: 22.2 ± 2 and HJHS: 24.1 ± 5.2). The high correlations between the PT in wrist and total PT ($r=0.721$; $p=0.002$) and moderate correlation between HJHS score and total PT ($r=0.508$; $p=0.032$), were observed.

	Ankles	knees	Wrist	ANOVA (p value)
Pain threshold (N)	67.16 (±24)	71.76 (±27)	78.74 (±24)	p=0.575

Table 1. The mean of PT at level of both ankles, knees and wrist expressed in newton (N).

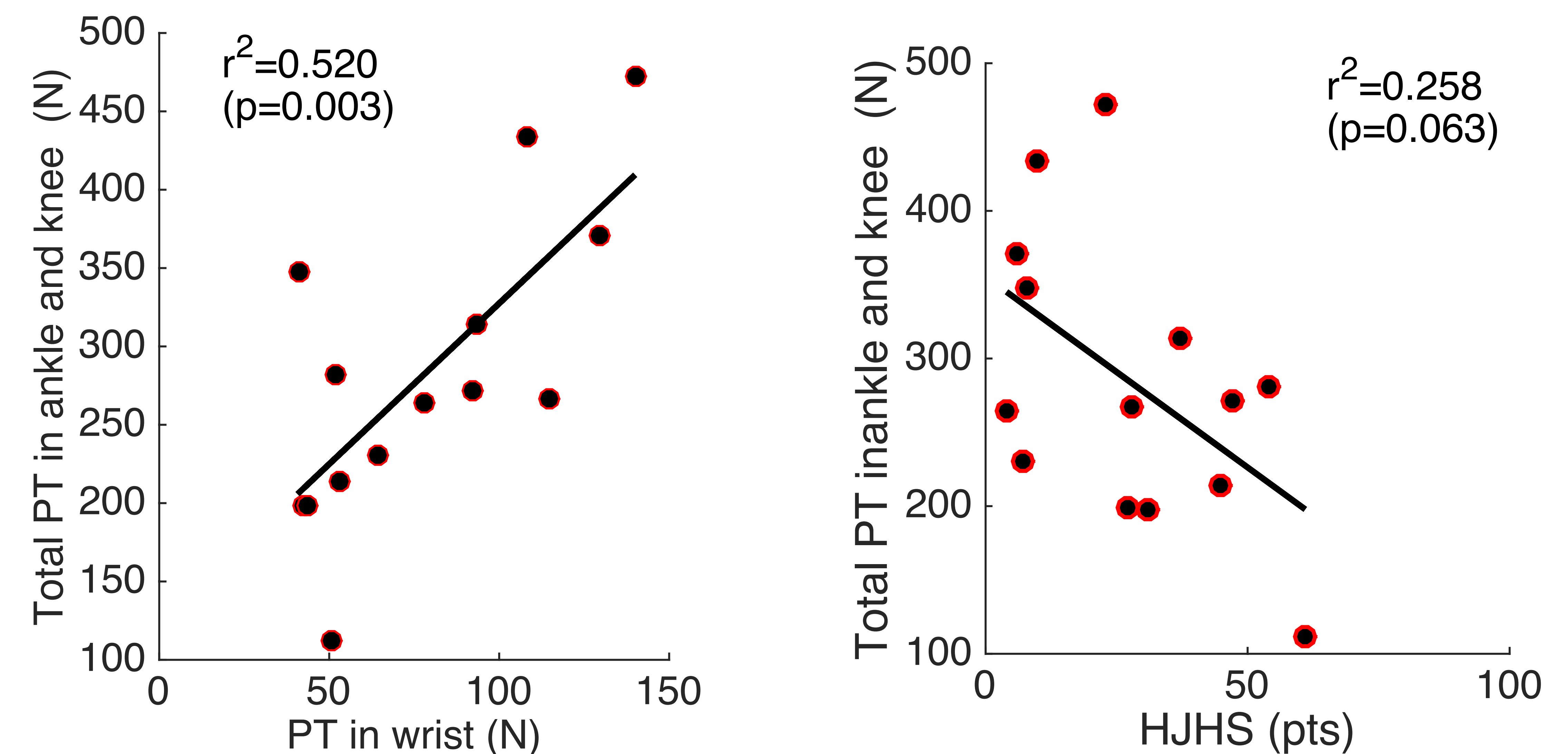


Figure 2. The lineal relationship between total pain threshold (PT), PT in wrist and HJHS score.

4.-Conclusions:

Our results proposed that the pain threshold in haemophilia patients is modulated more by central sensitization mechanism than joint dysfunction. These findings suggest that interventions to improve pain modulation in patients with haemophilia are necessary and show a new perspective for joint pain assessment. Future studies with radiological imaging are necessary to corroborate these results.

References:

- Teyssler *et al.* Haemophilia (2014), 20, 207–211.
 Fischer *et al.* Haemophilia (2013), 19, 944–950.
 Neogi *et al.* ARTHRITIS & RHEUMATOLOGY (2016), 654–661.



Poster Presented at:

DOI: 10.3232/ajph.ppt16.2016

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