

boards on fibromyalgia for Pfizer, Pierre-Fabre and Lilly in 2010–2014.

The other authors declare that they have no competing interest.

Acknowledgments

Acknowledgment to the *Fibromyalgie SOS* association and the Sanoia platform for their assistance in the performance of this study.

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<https://doi.org/10.1016/j.jbspin.2019.04.012>

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Fibrodysplasia ossificans progressiva at whole-body low-dose computed tomography



ARTICLE INFO

Keywords:

Fibrodysplasia ossificans progressiva (ORPHA337) (MIM 135100) (MIM 102576)

Myositis ossificans progressiva (ORPHA337)

Activin A receptor type 1/Activin-like kinase 2 (ACVR1/ALK2)

Whole-body low-dose computed tomography (WBLDCT)

Fibrodysplasia ossificans progressiva (FOP, stone man syndrome) is a rare genetic connective tissue disorder and the most disabling condition of heterotopic ossification in humans [1,2]. We propose to consider Whole-body low-dose computed tomography (WBLDCT) as a useful imaging tool in this condition.

Here is the case of a 34-year-old woman with FOP diagnosed at the age of twelve, who was referred to our radiology department for a detailed skeletal survey before potential inclusion in a trial involving inhibitors of ALK2 signaling. We performed a WBLDCT to provide, at low dose and in a short scanning time (25s), a precise and exhaustive 3D cartography of heterotopic ossifications and their repercussions on spine and joints. Multiplanar reformatted (MPR) and volume rendered (VR) images (Fig. 1) showed dramatic ribbons of hard bone extending from nuchal ligament to the lower cervical spine, bridging the humerus, scapulas, and the chest cavity (“tree branching pattern”), and fixing the lumbar spine to the left iliac crest. The 3D images optimally explained the limited mouth opening, restricted chest expansion, and ankylosis of pelvic girdle.

Advances in CT technology allows the use of low-dose CT protocols whilst preserving sensitivity and image details for high contrast structures [3]. Whole-body low-dose CT protocols were first introduced in the staging and monitoring of multiple myeloma patients [4], and have demonstrated their superior sensitivity to conventional radiography in staging of multiple myeloma [5]. The accuracy of low-dose CT protocols has been assessed for either other organs such as the lung parenchyma [6] or the lumbar spine [7], or pathologic entities such as oncologic follow-up [8]. But to our knowledge, the advantages of WBLDCT to evaluate FOP patients have never been highlighted. Technical advantages consist of: a 3D whole-body coverage (from head to toe), absence of bone superpositions effect on diagnostic performances, and pre-osseous formations detection [9,10]. Moreover, patient convenience is an important practical advantage for WBLDCT. Indeed, short scanning time (25s) of WBLDCT makes the exploration more comfortable for the patient who cannot remain seated, and will most likely remain feasible irrespective of the inevitable mobility decline. The implementation of a low-dose CT protocol, whilst still highly sensitive for high contrast structures such as ossifications, allows for an optimized radiation exposure and repeated acquisitions during follow-up in emerging clinical trials.

Disclosure of interest

The authors declare that they have no competing interest.

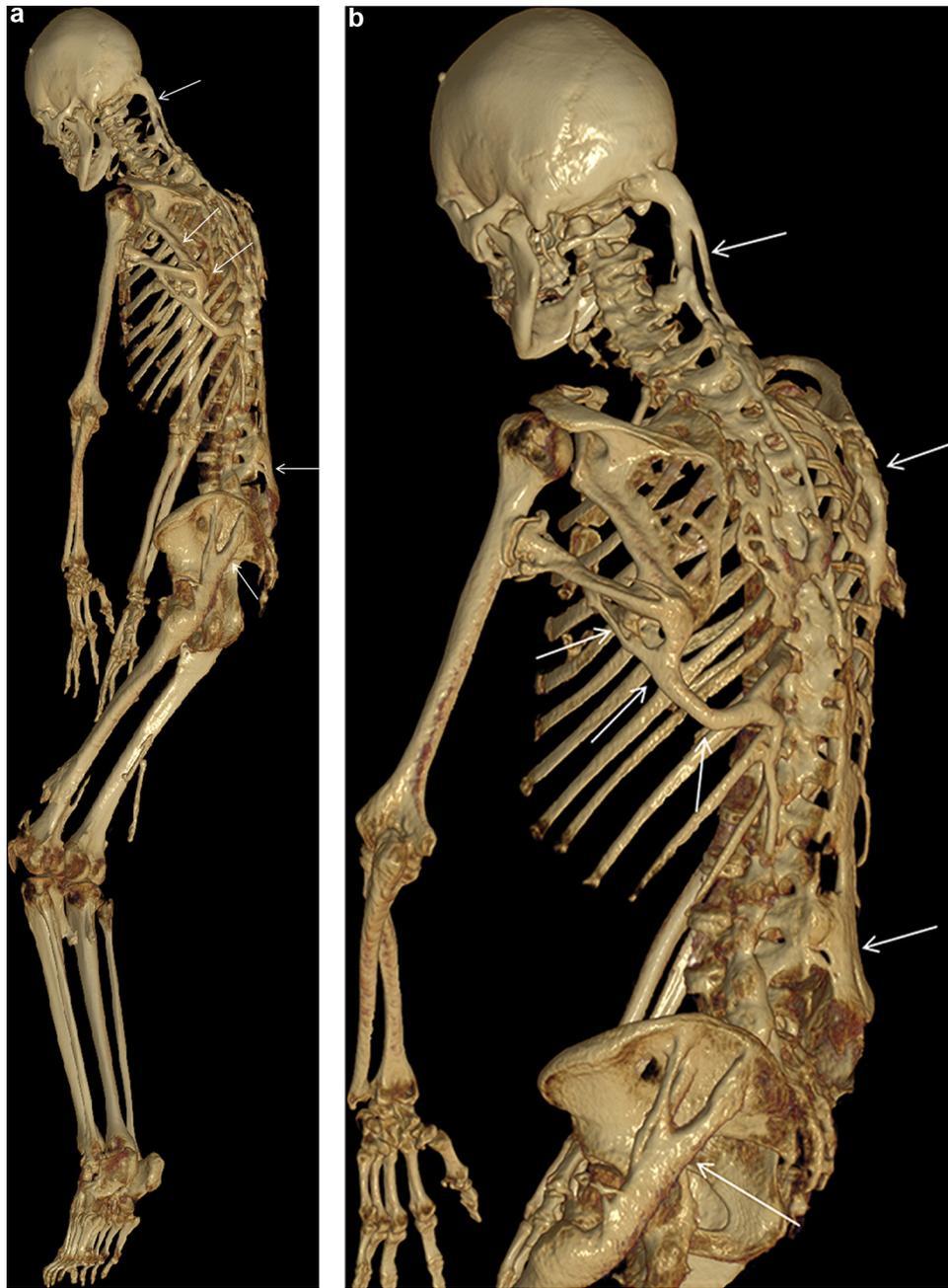


Fig. 1. Dramatic ribbons of hard bone extending from nuchal ligament to the lower cervical spine, bridging the humerus, scapula, and the chest cavity (“tree branching pattern”), and fixing the lumbar spine to the left iliac crest: a: multiplanar reformatted (MPR); b: volume rendered (VR) images.

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Accepted 7 May 2019

<https://doi.org/10.1016/j.jbspin.2019.05.001>

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Knowledge of and expectations about functional restoration programs for chronic low back pain: A mirror survey of 150 patients and 80 physicians in 2017



Chronic low back pain (cLBP), a multidimensional symptom [1,2], has a high prevalence in the general population, is costly [3,4] and ranks highest in terms of years lived with disability [5]. Its treatment and prevention therefore represent a major challenge for public health [6]. Functional restoration programs (FRPs) are multi-disciplinary rehabilitations programs that have demonstrated their effectiveness in cLBP [7–9]; however, they appear to be little known, and expectations are important in the health belief models. The objective of our study was to assess knowledge and expectations of patients and physicians regarding FRPs in cLBP.

This was a multicenter cross-sectional study in 2017 in 6 tertiary-care hospitals in France. Ethical committee approval was obtained (No. 18.08.21.46733). Consecutive cLBP patients and physicians dealing with these patients (rheumatologists or general practitioners, GPs) filled in a questionnaire [Appendix A, Document S1; see the supplementary material associated with this article online]. Knowledge of FRPs was assessed. Expectations regarding the process and results of these programs were collected and analyzed as ‘correct’ or not. Regarding the process, health professionals involved were scored correct if doctors and physiotherapist or sport coach were ticked but not occupational therapist, surgeon or osteopath and duration were scored if 3 to 6 weeks were ticked. Expectations were assessed on a multiple-choice list and

Table 1
Knowledge of FRPs.

| | Patients n (%) | Physicians n (%) |
|--|----------------|------------------|
| By what means | | |
| Physicians | 35 (89.7%) | 30 (51.7%) |
| Continuing medical education | 0 (0.0%) | 35 (60.3%) |
| Other | 7 (17.9%) | 16 (27.6%) |
| Health professionals involved perception | | |
| Correct | 13 (32.5%) | 41 (69.5%) |
| Rheumatologist | 26 (65%) | 55 (93.2%) |
| Physiotherapist | 36 (90%) | 55 (93.2%) |
| Sport coach | 24 (60%) | 29 (49.2%) |
| Occupational therapist | 3 (7.5%) | 11 (18.6%) |
| Spine surgeon | 3 (7.5%) | 4 (6.8%) |
| Psychologist | 16 (40%) | 45 (76.3%) |
| Psychiatrist | 4 (10%) | 13 (22%) |
| Social worker | 8 (20%) | 24 (40.7%) |
| Osteopath | 14 (35%) | 8 (13.6%) |
| Duration perception | | |
| Correct | 26 (70.3%) | 46 (78%) |
| < 1 week | 1 (2.7%) | 2 (3.4%) |
| 1 to 3 weeks | 10 (27%) | 10 (17.2%) |
| 3 to 6 weeks | 26 (70.3%) | 46 (79.3%) |

FRPs: functional restoration programs. The denominator was 37 to 40 for patients and 58 to 59 for physicians.

were scored ‘correct’ if return to work was an expectation, and ‘fully correct’ if physical activity and pain management were both an expectation while healing not. This classification is arbitrary. Statistical analyses were performed on R, version 3.2.4.

Of 150 patients 110 (73.3%) had no knowledge of FRPs. Among the remaining 40 patients: 57.5% were women, median age was 47.5 years [interquartile range (IQR): 37–55], cLBP median duration was 4.5 years (IQR: 2.6–11.5) and median duration of days off work due to cLBP in the year was 3.0 months (IQR: 1.1–8.5). The source of knowledge of FRPs was for 35 (89.7%) a physician.

Of 80 physicians who responded to the questionnaire, 21 (26.2%) had never heard of FRPs (of whom, 95.2% were GPs) ($P < 0.0001$ vs. patients). Among the remaining 59 physicians, 40.7% were GPs, and 57.6% were rheumatologists.

Knowledge (Table 1) of health professionals involved (32.5 vs. 69.5%, $P = 0.0003$) and correct expectations (Table 2) (52.5% vs. 75.0%, $P = 0.02$) were higher for physicians than patients, but there was no significant difference for knowledge of duration (70.3% vs. 78.0%, $P = 0.47$) and fully correct expectations (22.5% vs. 27.1%, $P = 0.6$).

In conclusion, FRPs were largely unknown to cLBP patients even though they had a severe and disabling disease. Even those who were aware of these programs did not know what to expect while some studies have suggested that patients’ expectations of treatment outcomes are one of the most important prognostic factors for patients with LBP [10]. Physicians’ knowledge and expectations were higher but there was still a lack of knowledge, which is an issue

Table 2
Expectations regarding FRPs.

| Expectations | Patients n (%) | | | Physicians n (%) | | |
|---|----------------|------------|--------------|------------------|------------|--------------|
| | ≤ 3 n (%) | ≥ 7 n (%) | Median (IQR) | ≤ 3 n (%) | ≥ 7 n (%) | Median (IQR) |
| Correct | 21 (52.5%) | | | 44 (75%) | | |
| Fully correct | 9 (22.5%) | | | 16 (27%) | | |
| Resumption of sports activities | 1 (2.9%) | 23 (65.7%) | 7 (6–10) | 0 | 49 (83.1%) | 8 (7–8) |
| Resuming work or improving working conditions | 1 (2.5%) | 21 (52.5%) | 7 (5–8.25) | 0 | 44 (74.6%) | 8 (7–8) |
| Better pain management | 0 | 22 (66.7%) | 8 (6–9) | 0 | 53 (89.8%) | 8 (7–8) |
| Improved quality of life | 1 (2.8%) | 28 (77.8%) | 8 (7–9) | 0 | 53 (89.8%) | 8 (7–8) |
| Decrease in pain | 3 (9.7%) | 17 (54.8%) | 7 (5–7) | 16 (27.1%) | 30 (50.8%) | 6 (3–8) |
| Healing | 13 (41.9%) | 6 (19.4%) | 4 (1–5) | 24 (40.7%) | 13 (22.0%) | 4 (2–6) |

FRPs: functional restoration programs. The denominator was 31 to 40 for patients and 59 for physicians.