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Letter to the Editor

Risk Factors for Musculoskeletal Disorders of the Lumbar Spine in Agricultural Workers

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Letter to the Editor

We were interested to read the article by Glänzel *et al*. on a prospective, single-centre study on the influence of body composition, flexibility and posture on low back pain in 37 agricultural workers [1]. It was found that patients with low back pain were more likely to be overweight than patients without low back pain, and that most patients with low back pain had abnormalities [1]. Subjects without lower back pain had a higher muscle mass, while those with lower back pain had a greater mass of adipose tissue [1]. The study concluded that low back pain in agricultural workers appears to correlate with body composition and postural deviations, while increased muscle mass protects against low back pain [1]. The study is excellent, but some points should be discussed.

The first point is that low back pain is multicausal and not only related to obesity, postural deviation and flexibility. In addition to these pathophysiological factors, causes that should be considered in the evaluation of low back pain in agricultural workers include chondrosis, osteochondrosis, spondylosis, spondyloarthritis, uncovertebral arthrosis, foraminal stenosis, disc herniation, osteoporosis, vertebrostenosis, spinal cord infarction, venous plexus congestion and radiculitis. These causes of low back pain need to be included in the investigation as they require different diagnostic approaches and treatments and may lead to different outcomes. There is also the possibility that the lower back pain originates from structures such as the kidneys, bowel, liver, bile ducts, aorta (dissection), iliac arteries or muscles. Therefore, one should not only consider orthopaedic or neurological causes of lower back pain, but also gastrointestinal, nephrological, urological and vascular causes of lower back pain. It would also have been useful to consider orthopaedic causes other than localised lumbar spine problems such as pelvic obliquity, coxarthrosis, bursitis, dislocation, subluxation, arthritis tendinopathy, and rheumatological conditions such as polyarthritis, ankylosing spondylitis, or osteoarthritis.

The second point is that the included patients did not undergo systematic imaging of the lumbar spine. In order to determine the cause of the low back pain, it would have been essential to subject all included patients to X-ray examination in all planes and oblique images, computed tomography or MRI of the lumbar spine, densitometry, abdominal ultrasound, Doppler sonography of the arteries and abdominal CT.

The third point is that the number of patients included in this study was small, which calls into question the reliability of the results. For the data to be adequately meaningful, the group size should have been much larger and the homogeneity of the group composition should have been ensured. Another limitation is that no healthy control group was included to compare with the farm labourers.

The fourth point relates to the assessment of postural deviations using a digital camera [1]. Spinal deviations can be assessed more accurately with methods that capture the bones (X-ray, CT, MRI) than from the outside. Postural abnormalities that can easily be overlooked when assessed only from the outside include scoliosis, hyperlordosis or hyperkyphosis. It would therefore have been imperative to compare the photographic method with radiological parameters.

The fifth point is that diet, smoking, alcohol consumption, substance abuse and the level of physical activity outside of work were not included in the analysis. Since diet and physical activity strongly influence the ratio between fat and muscle mass, it would have been imperative to include these factors in the analysis.

The sixth point is that the type of work that farm labourers regularly perform was not specified. Even those who only sit on the tractor can experience lower back pain.

To summarise, this interesting study has limitations that relativise the results and their interpretation. Addressing these

limitations could strengthen the conclusions and support the message of the study. All open questions need to be clarified before readers can uncritically accept the conclusions of the study. When assessing the pathophysiology of low back pain in agricultural workers, not only body composition, mobility and posture should be included in the analysis, but the full spectrum of causes that may be associated with low back pain.

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