

Spinal deformities in pediatric patients with cystic fibrosis: a critical analysis of the literature (Scoping Review)

ABSTRACT

Background. The prevalence of scoliosis in people with cystic fibrosis (CF) seems to be greater than in the normal population .

Objectives. The aim of this scoping review is to map critically the literature about the correlation between pediatric/adolescent populations with cystic fibrosis and prevalence of vertebral deformities. Is there in literature some guidelines about rehabilitation for these people?

Methods. The scoping review was conducted according to PRISMA-ScR with narrative synthesis (SWiM). The absence of protocol preregistration is disclosed and mitigated through transparency procedures (description of search strategies, traceability of exclusions). Searches were performed in two databases (Embase and PubMed).

Results. A total of 118 articles were identified and 81 analyzed; however, only 9 studies retrieved from the two databases (PubMed and Embase) fully met the predefined criteria. Vertebral deformities in pediatric patients with cystic fibrosis are not rare. Spinal deformities like scoliosis and hyperkyphosis are more frequent in patients with a deficit about FEV1. Two case reports suggest that corrective orthopedic surgery for severe cases of thoracic deformity in patients with CF can be addressed first and may also contribute to improving FEV1. Analysis of X-rays and FEV1 is the most widely used method for identifying spinal pathologies related to respiratory function. Only one study also mentions screening by a physiotherapist. There are different opinions about the prevalence of spinal dysmorphism in patients with CF compared to the healthy population in two studies. In the absence of guidelines, some studies recommend annual spinal screening in childhood for patients with CF. There are no guidelines for the treatment of spinal dysmorphism in patients with CF. Only one study discusses postural exercises, bracing, and possible corrective orthopedic surgery.

Conclusion. the literature about the correlation between cystic fibrosis in pediatric/adolescent patients and spine postural deformities is currently poor and doesn't provide specific guidelines for specific rehabilitation and valuation. Physiotherapists with multidisciplinary teams in specialized centers that follow patients from birth, should promote screening—at least in the pediatric/adolescent population—as an effective preventive measure. Specific training in this area is

also essential for physiotherapists, who in specialized centers typically have predominantly respiratory training.