

Sp19: Is it possible to predict the final deformity in spinal tuberculosis in patients undergoing conservative treatment?

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Recommendation: Based of the existing literature it is possible to predict the final deformity in patients undergoing conservative management as per the formula recommended by Dr. S. Rajashekaran article but there is no validation of this formula in any of the prospectively analyzed studies.

Level of Evidence: Low

Delegates vote:

Rationale

Knowing that severe kyphosis can lead to late complications which are very difficult to treat and radical debridement and fusion can effectively stop progression of kyphosis, a question therefore arises. Can we predict which deformity will progress to severe kyphosis such that early surgical intervention can be done to prevent this? (1)

Rajasekaran et al. (2) tried to answer this question by identifying the risk factors in patients who developed severe angular kyphosis. They retrospectively reviewed 90 adult patients who suffered from TB of the spine and found that the amount of vertebral body loss at the start of treatment had a good correlation with the severity of the deformity at the 5-year follow-up. They reported that the deformity at 5 years could be predicted with a fair level of accuracy by the formula $Y = a + bX$, where Y is the kyphotic deformity at the 5-year follow-up, X is the pretreatment vertebral body loss, and a and b are constant values of 5.5 and 30.5.

There was an average kyphosis angle of 30–35 degree for the complete destruction of each vertebral body in the dorsal and dorsolumbar region and approximately 20 degree for the complete loss of each vertebral body in the lumbar region. They recommended surgery for patients with loss of 0.75 of thoracic or thoracolumbar vertebra, or loss of one lumbar vertebra aiming at a final kyphosis of no more than 30 degrees.

Children on the other hand, have a higher degree of deformity at presentation, a greater tendency for collapse during the active phase of the disease, and continued and variable progression even after the infection is cured and growth completed. Spine at risk signs by Rajasekaran et al. suggests the ongoing kyphosis progresses and the need for surgical intervention at the earliest of kyphosis in children but does not help in predicting the final deformity when the children are on conservative trial. (3)

Although chemotherapy may inactivate the infection, vertebral collapse continues until the healthy vertebral bodies in the region of the kyphosis approximate anteriorly and consolidate. Depending on the extent of initial vertebral loss, three types of collapse have been noted in the article by Rajashekaran which in turn predicts the final deformity. (4)

13th report of the Medical Research Council working party on TB of the spine concluded that conservatively treated group also had more progression of kyphosis, 21 at 5 years, which further increased to 25 at 15 years. In contrast, the radical debridement and fusion group showed an

improvement of 3 at 5 years, and this was maintained at the final 15-year follow-up assessment. (1,5)

References

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