Letter to the Editor

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Respiratory Function in the Perioperative Phase of the Harrington Operation

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In their interesting paper Sakic et al. [1] compared the respiratory function of 33 patients who underwent spondylodesis according to Harrington. They demonstrated that surgery is a possible way for patients to improve lung function within 2 years time and as a consequence probably long-term prognosis. In a retrospective study I evaluated the histories of 85 patients [53 females, 22 males, age 21.4 (SD 12.9) years] with vertebral deformations during the perioperative phase of the Harrington spondylodesis up to 4 weeks after operation [2]. On an average 9.5 vertebral segments were involved in the spondylodesis. The postoperative X-rays showed that the mean (SD) thoracic Cobb angle had improved from 66.7° (17.7) to 35.9° (17.6). The VC expressed as percentage of the normal value was 79.4% (18.8) and the corresponding mean FEV₁ was 78.6% (20.1). The VC could be improved in the weeks preceding the operation by physical therapy in an order of 200 ml per week. The mean pre-operative Tiffeneau index was determined at 83.7%. Both major respiratory parameters did not show significant correlations with either thoracic or lumbar Cobb angles ($0 > r > -0.35$). However, the body surface and body weight correlated significantly with each lung function parameter. The average arterial Po₂ was 75.2 (9.1) mm Hg and the respective Pco₂-value was 36.6 (4.9) mm Hg. It is evident that these figures correspond largely to those presented by the authors. On the other hand, the acute stress of the operation deteriorated the lung function temporarily in the postoperative phase which made intensive physical therapy necessary. In figure 1 the development of hypoxic states in the perioperative phase is depicted. Gener-

Preop. Intraop. Postop. Day 1 Day 2 Day 3 Day 4 Week 1 Week 2

Fig. 1. Development of hypoxia in the acute perioperative phase up to 4 weeks after the spondylodesis according to Harrington measured as occurrence of hypoxic states in 85 patients. The following degrees were defined (Po₂, mm Hg): I = 80-71, II = 70-61, III = 60-51, IV = 50-41.

References

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ally, no severe complications were observed but the patients obviously need frequent controls briefly after the operation. A similar development of frequency and degree was also observed for other complications such as tachycardia or anemia. Although it is difficult to prove a clear pulmonary benefit after spondylodesis of scoliosis within 2 years time, the correlation between lung function and surgical results already found by Savini et al. [3], who controlled 76 patients during 3 years following surgery due to idiopathic scoliosis, support the view that the Harrington spondylodesis may be advantageous at long date.