

Abstract:

STUDY DESIGN: A cross-sectional study of thoracic pedicle morphometry (T1-T12) of 180 Malaysian Malay patients obtained from computed tomographic scan. **OBJECTIVES:** To determine the safety margin in the placement of thoracic transpedicular screw in the Malay population. **SUMMARY OF THE BACKGROUND DATA:** Previous studies have shown a significantly smaller thoracic pedicular parameters in Asians compared with whites. The safety margin in the placement of thoracic transpedicular screw in our population therefore needs to be defined. **METHODS:** T1-T12 vertebral pedicles were studied in 180 Malay ethnic patients (age range, 18-80 years). The following parameters were studied: transverse outer pedicle diameter, transverse inner pedicle diameter, transverse pedicle angle, chord length, pedicle length, and pedicle cortical thickness. The data obtained were statistically analyzed using Student's t test and ANOVA test. **RESULTS:** Female patients have significantly smaller dimensions in most of the parameters measured compared with male patients. However, no significant difference was found between age groups. Transverse outer pedicle diameter were widest at T1 (male, 8.42 mm; female, 7.56 mm) and narrowest at T4 (male, 4.56 mm; female, 3.95 mm). Pedicle diameters of less than 5.5 mm were commonly seen at T4 followed by T5, T6, T7, T8, and T9. A significant percentage of patients have an outer diameter of less than 4.5 mm from T4-T7. The medial cortices were 50% thicker than the lateral cortices at most levels. Chord lengths were maximum at T8 and minimum at T1. Transverse pedicle angle were widest at T1 and less than 5 degrees from T7-T12. **CONCLUSIONS:** The results suggest that the current pedicle screw system is not suitable for the majority of Malay population, especially at midthoracic level. The smaller pedicle measurements in Malays may be attributed to their shorter body built compared with whites.