Abstract

**Background:** The portable chest X-ray in newborns hospitalized in neonatal intensive care units is one of the most common diagnostic procedures. Every baby during hospitalization period may be incurred over a number of portable chest radiography examinations. The aim of this research is the evaluation of rotation factor in neonatal mobile radiographic chest with and without body rest.

**Materials and methods:** This is an interventional study with nonequivalent groups in which rotation factor was evaluated on 05 portable chest radiography on fields of newborns admitted to NICUs (in two intervention and control groups), by comparing the length of posterior ribs on both sides of the chest. In this study, 671 radiographs were related to newborns from three university hospitals so that sandbags or patient's accompanies had been used to stabilize the position of patient, and 77 radiographs were for infants referred to an academic center whose positions had been stabilized during X-ray using body immobilizer.

**Results:** The mean difference between the length of right and left posterior ribs in infants stabilized with the usual method (sandbags or patient's accompanies) was obtained 1556±5525 mm. This statistical index for the second group of infants whose positions had been stabilized through body immobilizer was 05.7±0565 mm. Data assessment with SPSS via Independent t-test showed a significant difference between the two groups in terms of the difference in the quantity of rotation.

**Conclusion:** The neonatal position during radiography can be improved considerably by using proper body immobilizer, and repeating the tests can be avoided due to inappropriate positioning. By means of such an instrument, there is no need for the help of accompanies or personnel to stabilize infant position, and their exposure will be prevented.

**Key words:** Infant Immobilizer, Chest radiography, Positioning, Rotation