Inclination of the Lumbosacral angle in normal individuals: An MRI study

Rana Abdul Rahman Aziz

M.B.,Ch.B./ PhD Anatomy. Head of Department of Anatomy / Medicine College / Al-Iraqia University.

ABSTRACT

Introduction:
The Lumbosacral angle is the angle between the long axis of the lumbar part of the vertebral column and that of the sacrum.

Methods and measurement
The subject of this study was the measurement of the inclination of the lumbosacral angle (LSA), by using lumbosacral MRI studies of 50 apparently normal MRI films (25 males and 25 females) in order to estimate from the pure anatomic point of view if there is a gender difference in different age groups. Electronic Goniometer was used.

Results and discussion:
The ages of male group was ranged from 17-75 years old (mean 43.6), while the females group was from 18-70 years old (mean 43.48). The LSI angle mean for males was 138.56 and that of females group was 141.08. Although the angles measurements were bigger for females than males, the P value = 0.278 (>0.05) indicates that there was no statistical significant difference between the two means.

Conclusion:
The lumbosacral angle is simple to be measured radiologically especially by MRI and the results obtained from our population is comparable to those published by other foreign researchers with comparable means, the females have larger angles than males but with no significant statistical difference.

Keywords: Lumbosacral angle, Inclination, Goniometer, Gender difference, MRI.
were made by the author in order to remove inter-observer error. The statistical analysis performed using the program SPSS 22.0 for Windows. Due to the small sample and to the fact that the variables weren’t following the normal distribution, the non-parametric statistics were used to find out if any difference existed or not. The statistical significant level for the tests was $p=0.05$.

**Discussion:**
The lumbosacral angle is one of the important normal anatomical parameters, it considered as a theoretical reason for back pain symptomatology, hence its importance emerges in clinical practice (1,2,3,4). In this study two comparable groups in number 50% (25) males, 50% (25) females with comparable ages (mean ages 43.60 and 43.48 respectively) as shown in Table (1) were included in our study, the mean LSI angle for the males was 138.56 and for the females 141.08 which were compared to results published by other authors in which it has been also showed that the mean angle for females is greater than that of males (26,27). However in this study there was no statistical significant difference between the means as shown in table (3) ($p$ value was greater than 0.05), this was also agreed by Güldal Funda Nakipoglu (27) and Mehmet Caglayan etal (28) researches. The lumbosacral inclination angle in our society is similar to that of others so the surgical and medical diseases symptomatology and the subsequent procedures are suggested to be the same.

**Conclusion:**
The lumbosacral inclination angle is simple to be measured radiologically especially by MRI and the results obtained from our population is comparable to those published by other foreign researchers with comparable means, the females has larger angles than males with no significant statistical difference.

**References:**


