Comments on Reito et al.: Assessment of inter- and intra-observer reliability in the determination of radiographic version and inclination of the cup in metal-on-metal hip resurfacing

Vikas Bachhal · Sushil Rangdal · Gaurav Saini ·
Mandeep Dhillon

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We read the article by Reito et al. [1] which discussed the radiographic method of determining version and inclination in metal-on-metal hip arthroplasty with interest. Although we agree with the validity of the method used by the authors [2], it is not the easiest for measuring anteversion for metal-on-metal arthroplasty. We would like to take the liberty of using the figure used in this article to make our point and describe an alternative method which in our opinion is easier and involves fewer calculations.

Instead of measuring value e , an alternative length h , described as the length of a line segment from the point where the major semi axis intersects line p to a point on the same line (extended) where it intersects the circular outline of the cup (assuming it to be a hemisphere), is used (Fig. 1). Now the angle of anteversion can be given by the equation:

$$\text{Anteversion} = \sin^{-1}(p/h)$$

Software such as Microsoft excel can be used to make precise calculations for the above equation or a scientific

calculator (online, PDAs, etc.) can be used. If one wishes to use ready tables, then it is easy to see that calculation of two fractions (p/e and r/e , Table used in article by Reito et al. [1]) might give values between those provided in the table, thus requiring rounding off of two fractions while a similar table prepared for arcsine function would require rounding off of a single fraction resulting in more accurate calculation of anteversion. We have provided Table 1 for such purposes. To further prove our point, consider an example with the following values: $r=37$, $e=35$, $p=5$, $h=12$.

Using Table 1 (in article by Reito et al. [1]), with $p/e=0.14$ and $r/e=1.06$ (both rounded to 2 decimals), the angle calculated will be 23.5 while using the equation (ours or as given in this article) it is 24.62, and it is 24.83 when using Table 1 for ratio p/h . This clearly shows that our suggested method involves fewer measurements (p and h vs p , r and e), fewer calculations (one ratio vs two) and is more accurate if using a table as it involves approximation of one ratio as compared to two.

In our opinion, although this study makes a valid attempt at devising a method for measuring anteversion in MMTHR, their method is not the easiest nor most accurate. Although this method holds true for hemispherical cups, for non-hemispherical cups a second circle can be drawn with major semi axis as its radius and centre at origin of ellipse. Further measurements will be the same as described above.

V. Bachhal (✉) · S. Rangdal · G. Saini · M. Dhillon
Department of Orthopaedics, Postgraduate Institute of Medical
Education and Research,
Chandigarh, India
e-mail: vikasbachhal@gmail.com

Table 1 (continued)

<i>p/h</i>	Anteversion	<i>p/h</i>	Anteversion
0.47	28.03	0.97	75.93
0.48	28.69	0.98	78.52
0.49	29.34	0.99	81.89
0.5	30.00	1	90.00

References

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