

Supplementary article data

No association between serum metal ions and implant fixation in large-head metal-on-metal total hip arthroplasty

A 5-year radiostereometric study of 49 hips

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Table 1. 5-year total translation (mm), total rotation ($^{\circ}$), serum metal ion levels ($\mu\text{g/L}$), HHS and OHS of the 4 bilateral cases followed with RSA. Left side was included in the statistical analysis. Values are left/right or ion level

Pt.	TT ^a	Cup (n=2)				Pt.	TT ^a	Stem (n=3)					
		TR ^b	HHS	OHS	Chromium Cobolt			TR ^b	HHS	OHS	Chromium Cobolt		
1	1.32/1.27	4.88/2.26	96/96	48/48	28.38	21.47	1	0.50/1.09	1.03/4.12	86/62	48/14	1.64	0.89
2	1.76/2.14	1.94/2.28	91/84	48/42	5.00	4.88	2	0.44/1.06	0.64/1.06	96/96	48/48	28.38	21.47
							3	1.17/1.66	2.61/1.66	96/92	48/48	8.01	4.32

^a The total translation was calculated using the 3-D Pythagorean theorem ($TT = \sqrt{x^2 + y^2 + z^2}$).

^b The total rotation was calculated using the 3-D Pythagorean theorem ($TR = \sqrt{x^2 + y^2 + z^2}$).

Table 2. Measurement of error of the RSA for double-examination stereo radiographs for translations and rotations. Mean dif. represents the systematic error of the system. SD dif. is the random variation within the method comparing the double examinations. CR (SD dif. x 1.96) reflects the precision on the individual basis of the system

Axis	Translation cup (mm) (n = 35)				Rotation cup ($^{\circ}$) (n=35)				Translation stem (mm) (n = 38)				Rotation stem ($^{\circ}$) (n=38)			
	X	Y	Z	TT ^a	X	Y	Z	TR ^b	X	Y	Z	TT ^a	X	Y	Z	TR ^b
Mean dif.	-0.16	-0.03	0.10	-0.02	0.15	-0.20	0.05	-0.25	-0.12	-0.06	-0.02	-0.05	-0.12	-0.06	-0.06	-0.24
SD dif.	0.54	0.16	0.44	0.39	1.05	1.07	1.18	1.02	0.21	0.22	0.30	0.23	0.65	1.40	0.27	0.91
CR ^c	1.05	0.31	0.86	0.76	2.05	2.09	2.31	1.99	0.41	0.43	0.59	0.45	1.27	2.74	0.53	1.78

^a The total translation was calculated using the 3-D Pythagorean theorem ($TT = \sqrt{x^2 + y^2 + z^2}$).

^b The total rotation was calculated using the 3-D Pythagorean theorem ($TR = \sqrt{x^2 + y^2 + z^2}$).

^c CR = Coefficient of Repeatability (SD dif. x 1.96)

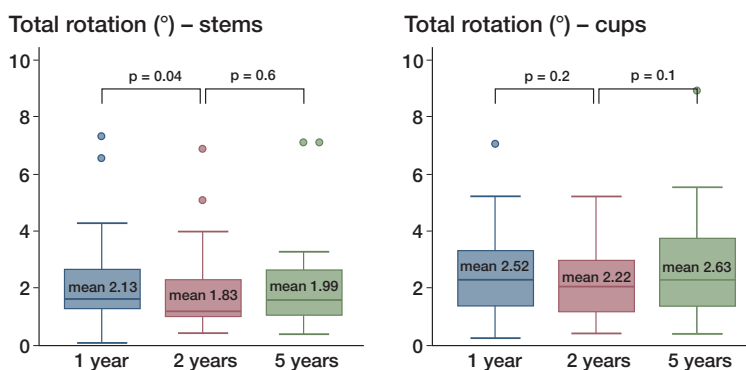


Figure 2. Box plots of total rotations (°) in cups and stems at the 1-, 2-, and 5-year follow-up. The line in each box marks the median, the box shows the interquartile range, and the whiskers show the tenth and ninetieth percentiles.