

Supplementary article data

Risk factors for aseptic loosening of Müller-type straight stems

A registry-based analysis of 828 consecutive cases with a minimum follow-up of 16 years

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Supplementary data

Table 2. Technical details of the 4 stems investigated

| | MSS Co | MSS Ti | SL Ti | SL Co |
|--|--------------------|-------------|--|---------------------------------|
| Material specification | ISO 5832-6 | ISO 5832-11 | ISO 5832-11 | ISO 5832-6 |
| Modulus of elasticity | 220 GPa | 110 GPa | 110 GPa | 220 GPa |
| Surface finish | homogenous blasted | | proximal third rough-blasted, distal two-thirds blasted | |
| Surface roughness (R_a), μm | 0.5–1.5 | 1–2 | proximal 3–5, distal 0.5–1.5 | proximal 4–6, distal 0.5–1.5 |

Supplementary data

Table 5. Crude and adjusted risk ratios (RRs) for aseptic loosening of Müller-type straight stems

| Covariates | n | | Aseptic loosening | | Crude RR (95% CI) | | Adjusted RR (95% CI) | |
|--------------|-----|----|-------------------|----|-------------------|---------|----------------------|---------|
| | n | % | n | % | | p-value | | p-value |
| Design | | | | | | | | |
| SL | 389 | 47 | 84 | 22 | 2.2 (1.6–3.1) | < 0.001 | 1.5 (1.1–2.3) | 0.03 |
| MSS | 439 | 53 | 55 | 13 | ref. group | | ref. group | |
| Material | | | | | | | | |
| Ti | 500 | 60 | 114 | 23 | 3.6 (2.3–5.5) | < 0.001 | 3.2 (2–5) | < 0.001 |
| Co | 328 | 40 | 25 | 8 | ref. group | | ref. group | |
| Age | | | | | | | | |
| < 50 years | 28 | 3 | 8 | 29 | 3.1 (1.3–7.3) | 0.01 | 3.9 (1.6–9.3) | 0.002 |
| 50–59 years | 113 | 14 | 33 | 29 | 3.1 (1.7–5.7) | < 0.001 | 2.9 (1.5–5.3) | 0.001 |
| 60–75 years | 454 | 55 | 83 | 18 | 2.0 (1.2–3.5) | 0.01 | 2.1 (1.2–3.7) | 0.009 |
| > 75 years | 233 | 28 | 15 | 6 | ref. group | | ref. group | |
| Sex | | | | | | | | |
| male | 485 | 59 | 106 | 22 | 2.7 (1.8–3.9) | < 0.001 | 3.0 (2–4.5) | < 0.001 |
| female | 343 | 41 | 33 | 10 | ref. group | | ref. group | |
| Diagnosis | | | | | | | | |
| others | 43 | 5 | 6 | 14 | 0.8 (0.4–1.9) | 0.6 | | |
| IA | 30 | 4 | 1 | 3 | 0.2 (0–1.4) | 0.1 | | |
| Fx | 55 | 7 | 3 | 6 | 0.4 (0.1–1.1) | 0.08 | | |
| OA | 700 | 85 | 129 | 18 | ref. group | | | |
| Offset | | | | | | | | |
| SL stem | 389 | 47 | 84 | 22 | 3.5 (2–6.2) | < 0.001 | | |
| MSS lateral | 250 | 30 | 40 | 16 | 2.1 (1.1–3.7) | 0.02 | | |
| MSS standard | 189 | 23 | 15 | 8 | ref. group | | | |
| Stem size | | | | | | | | |
| 7.5 | 131 | 16 | 34 | 26 | 4.5 (1.9–10.8) | 0.001 | 4.5 (1.8–11) | 0.001 |
| 10 | 355 | 43 | 71 | 20 | 3.0 (1.3–6.9) | 0.01 | 2.4 (1–5.6) | 0.04 |
| 12.5 | 253 | 31 | 28 | 11 | 1.7 (0.7–4) | 0.3 | 1.5 (0.6–3.6) | 0.4 |
| ≥ 15 | 89 | 11 | 6 | 7 | ref. group | | ref. group | |
| Cup | | | | | | | | |
| cementless | 500 | 60 | 116 | 23 | 4.1 (2.6–6.4) | < 0.001 | 2.4 (1.4–3.9) | 0.001 |
| cemented | 328 | 40 | 23 | 7 | ref. group | | ref. group | |
| Head size | | | | | | | | |
| 28 mm | 563 | 68 | 118 | 21 | 3.5 (2.1–5.6) | < 0.001 | | |
| 32 mm | 265 | 32 | 21 | 8 | ref. group | | | |

n represents number of stems.
 OA; osteoarthritis; IA: inflammatory arthritis; Fx: fracture.