Dear All,

This Field Note contains the following topics:

1. New publication on EVOLUTION® Medial-Pivot
   Samy DA, Wolfstadt JJ, Vaidee I, Backstein DJ
   “A Retrospective Comparison of a Medial-Pivot and Posterior-Stabilized Total Knee
   Arthroplasty With Respect to Patient-Reported and Radiographic Outcomes”
   The Journal of Arthroplasty (2017) 1-5

2. New publication on Conserve® Plus
   Girard J., A. Lons A., Ramdane N., Putman S.
   “Hip Resurfacing Before 50 Years of Age: A Prospective Study of 979 Hips with a Mean
   Follow-up of 5.1 Years” Orthopaedics & Traumatology: Surgery & Research
   Available online 23 December 2017 – In press
1. **New publication on EVOLUTION® Medial-Pivot**

Samy DA, Wolfstadt JI, Vaidee I, Backstein DJ “A Retrospective Comparison of a Medial-Pivot and Posterior-Stabilized Total Knee Arthroplasty With Respect to Patient-Reported and Radiographic Outcomes” The Journal of Arthroplasty (2017) 1-5

This study compares the Range Of Motion (ROM) and patient-reported outcomes (using the Forgotten Joint Score [FJS]) between the EVOLUTION® Medial-Pivot (MicroPort, Arlington, TN) and the Zimmer Persona Posterior Stabilized (Zimmer,Warsaw, IN) Knee Systems.

Inclusion criteria were any patient undergoing a primary Total Knee Arthroplasty (TKA) with a diagnosis of osteoarthritis, rheumatoid arthritis, or posttraumatic arthritis, with no specific criteria for implant selection. The main surgeon did not selectively chose the Medial-Pivot (MP) design for specific preoperative conditions, since the groups represent two consecutive cohorts of patients while the surgeon gradually changed his practice and preference.

There was no statistically significant difference in mean age between the two groups. The male: female ratio of the MP group was 29:47 and 34:54 for the Persona (PS) group.

A total of 164 patients were included in this study; 76 patients in the MP group and 88 patients in the PS group. One hundred seventeen patients completed the FJS at their one-year follow-up (57 MP vs 60 PS).

At the six-week, six-month, and one-year follow-up visits, there was no statistically significant difference in the ROM improvement between the two groups.

The authors found a statistically significant difference in the overall mean FJS scores between the two groups in favor of the MP-TKA system.

There was also a statistically significant difference between the two groups for the question “[Are you aware of your artificial joint when you are] standing up from a low-sitting position”, also in favor of the MP knee.

In this cohort, four patients underwent a reoperation during the follow-up period. There were two polyethylene liner exchanges in the MP TKA group, both for subjective instability. In the Persona group, there were two reoperations, one for instability (with a liner exchange) one due to a postoperative infection.
To date, this study is the first to compare an MP TKA and a PS TKA using the FJS as a primary outcome measure.

The authors conclude that patients who underwent the MP TKA scored significantly better on the FJS than those who underwent the PS TKA, particularly with regard to deep knee flexion and stability of the prosthesis. This is of importance as the goal of TKA surgery is to provide a joint replacement that functions as closely as possible to a normal knee without an artificial sensation.

To overcome some limitations of this study, further analysis will include larger cohorts and a randomized, controlled design.

**The Forgotten Joint Score [FJS]**

The FJS is a validated measure of patient satisfaction after TKA. The score consists of 12 questions, each pertaining to the patient’s ability to carry out daily activities. For each question, the patient is asked to answer as one of “Never,” “Almost never,” “Rarely/Seldom,” “Sometimes,” or “Mostly.” Each response corresponds to a value. The raw scores range from 12 to 60, with a higher raw score indicating a worse outcome. The raw score is then converted to a linearly scaled score of 100. A high final score indicates a good outcome and a low final score indicates a poor outcome.

**2. New publication on Conserve® Plus**

Girard J., A. Lons A., Ramdane N., Putman S. “Hip Resurfacing Before 50 Years of Age: A Prospective Study of 979 Hips with a Mean Follow-up of 5.1 Years” Orthopaedics & Traumatology: Surgery & Research - Available online 23 December 2017 – In press

This is a retrospective study of consecutive, prospectively included patients who underwent resurfacing surgery (HRA) before 50 years of age. The aims of the study were to determine the revision rate after HRA performed before 50 years of age and to assess the functional, radiological, and biological outcomes of HRA.

All 936 patients received a Conserve® Plus implant, with a cemented femoral component and a cementless acetabular shell (HA coated). The majority of indications were for osteoarthritis (67.3%) and dysplasia (14.0%).

The 936 patients included in the study underwent 979 HRA procedures. Of these 979 procedures, 71.3% were in males and 28.7% in females. At surgery, mean age was 42.7 years (range: 16.4–50 years). Median diameter was 58mm for the cup (range: 44–66mm) and 52mm (range: 38–60mm) for the femoral head. Mean cup diameter was 54mm in females and 60mm in males. Mean follow-up was 5.1 years (range: 3.1–9 years) and only five hips were lost to follow-up.
Complete functional, radiological, and biological data were available at last follow-up for 962 hips. At last follow-up, all functional scores including the 12-item OHS were improved compared to baseline Mean cup inclination in the coronal plane was $42.1^\circ$ ($25^\circ$–$68^\circ$) with 10 (1%) cups having more than $55^\circ$ of coronal inclination.

Cobalt and chromium levels were determined pre-operatively in 934/936 patients and at last follow-up in 918/936 patients. Mean cobalt levels increased significantly from 0.61 µg/L pre-operatively to 1.36 µg/L at last follow-up. Similarly, mean chromium levels increased significantly between these two time points, from 0.42 µg/L to 1.59 µg/L at last follow-up. Blood cobalt and chromium levels showed no significant associations with age, body weight, nature of the hip disease, cup inclination, or implant size. Levels of both metal ions were significantly higher in females than in males.

No patient experienced dislocation. There were 17 (1.7%) revisions. Among them, five did not involve an implant change (two postoperative haematoma, two infections and one arthrolysis). The remaining 12 (1.2%) revisions consisted in conversion to THA. For 8 (0.8%) hips, THA was required because of failure of the femoral component manifesting as loosening ($n=6$) or collapse of the femoral head ($n = 2$). Among the remaining 4 hips requiring THA, there was 1 (0.1%) case each of infection 2 years after HRA, adverse reaction to metal debris, traumatic fracture of the pelvis 2 years after HRA and arthrofibrosis. A subgroup analysis was performed to compare the groups with femoral head diameters $< 48$mm and $\geq 48$mm. No significant differences in the functional scores or revision rates were found between these two groups.

In the survival analysis with any implant change as the endpoint, 10-year survival was 98.7% (95%CI, 97.6%–99.3%). Thus, the NICE criterion of a 10-year revision rate no greater than 5% was met.

The authors conclude that, in 2017, their results confirm HRA as an alternative to THA in a selected population of younger patients. In addition to providing excellent functional outcomes, HRA has a survival rate that easily meets the NICE criterion. The survival rate in this study is also particularly encouraging, as it was obtained in a population of very young patients with a high level of physical activity.