29th Annual Congress International Society for Technology in Arthroplasty (ISTA)
October 5th-8th, 2016 Boston MA, USA

ISTA’s 29th Annual Congress attracted over 700 surgeons, researchers and industry members from 26 countries. A total of 729 presentations covered all aspects of arthroplasty in: 31 podium sessions, 38 e-posters with short talk sessions, and 147 static e-posters. The main topics were Total Hip and Knee Arthroplasty. However other joints like shoulder, elbow and ankle joint were addressed as well. Additionally two specific sessions dealt with Economics and Innovation.

Main topics:
For Total Hip Arthroplasty the sessions focused on:
- Surgical techniques and technologies for improved implant positioning
- Material aspect addressing modular junctions and wear
- Clinical aspects and related complications
- Metal on Metal issues and benefits

Additionally two specific sessions dealt with Economics and Innovation.


Highlights THA:
Articulation / bearings
- Ceramic: Due to the issues with metal (CoCr) heads and the information about their carcinogenicity (MCN 1_2017) ceramic was back into the spotlight. The fracture rate of a large number of BIOLOX® delta components was presented to be extremely low. Ageing has been investigated (Esposito, Parke) and, despite some phase transformation, showed no effect on strength and surface roughness of this mixed ceramic. Several long-term studies with ceramic-on-ceramic (CoC) articulation in young patients demonstrated the excellent survivorship and functional outcome of this bearing combination (e.g. Lim, Murphy, Baek – 15 years, Garcia-Rey - 17 years, Sedel - 30 years). Noise with CoC was also a topic of several presentations. It is complex and still poorly understood. Although a disturbing phenomenon, almost no revisions due to squeaking were reported. Clicking is especially prominent in the Asian population and with 28 mm heads (Baek).
- Polyethylene: XLPE data up to 15 years shows that osteolysis is becoming apparent, although consistently to a much lesser extent than for CoPE (e.g. Baek, Garcia-Rey, MacLean). Despite the overall positive results most researchers are waiting for the outcomes of the 2nd decade of usage.

Tribo-corrosion (MACC)
- MACC (Mechanically assisted crevice corrosion) and adverse local tissue reaction (ALTR) remain still the hottest topics in THA and have been observed in 70% of all retrievals (Noble, Kurtz). The biological effect of metal wear particles and ions was also topic of several presentations (e.g. Paulus, Barlow, Van der Straaten - TKA, Reiner - TSA). Evidence is increasing that it leads to ca. 2% revisions (McGrory, Urish), levering it into the top failure reasons for THA. As this issue is increasing with time (Lange, Kurtz) a further aggravation of these numbers is expected. The causes of MACC are still under investigation (Teeter) and laboratory experiments are executed to find the potential mechanisms (Gilbert, Bitter, Mueller, Noble). The main factors seem to be seating strength of modular connections and neck offset (Gilbert, Noble), while taper morphology seems to be not significant (Noble, Kurtz). The benefit of using ceramic heads for reducing this issue has been confirmed by several presentations (e.g. Kurtz, Meftha).

Health Economics / PJI
- Several presentations and a whole session were dedicated to the question of the value of advanced technologies. Consensus is that any new technology or method must demonstrate its efficacy by clinical evidence to address a clinical need and also its financial benefit of using ceramic heads for reducing this issue has been confirmed by several presentations (e.g. Kurtz, Meftha).

Innovation presentations
- Therapeutic UHMWPE as a bearing surface against PJI (Muratoğlu)
- New CoC TKA implant (Sedel)
- All-Polymer TKA implant (Cowie)
- Ceramic Hip Resurfacing and Hip Resurfacing Revision (Khan)
- Positioning devices for the cup (e.g. Murphy)
- Biomarkers for Painful Knee Arthroplasty
- TiO2 Nanotubes and Antimicrobial Silver (Justin)
- Polycarbonate Urethanes vs. an articular cartilage counterface (Kanca)
- Ceramic on Phospholipid Polymer Surface for THA (Weisenburger)
- Ceramic vs. CoCrMo-Alloy in the Articulation With Living Cartilage (Wimmer)

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