Increased demand gives orthopaedic surgeons a 'golden opportunity' to lead and 'take control'

Change in practice needed to achieve best outcomes for patients, best value for taxpayers.

To continue to provide expert and timely care, orthopaedic surgeons need to improve the evidence base and change the shape and size of the workforce, according to a presenter at the 15th EFORT Congress – a combined programme in partnership with the BOA.

"The wind of change is here and we must change, I believe. If we don't take the leadership and change, others such as politicians and managers will. They will do it in a way that is unacceptable and unpalatable to us and actually I do not believe it will benefit our patients," said Timothy Briggs, MBBS(Hons), MChOrth, FRCS(Ed), FRCS(Eng), at a 5 June symposium on international health care.

He said an increased demand for orthopaedic services, an ageing population who is living longer, a decreasing workforce and obesity have added to the health care burden around the world. In 1950, there were 856 million people older than age 60 years in the world. By 2050, there will be more than 2 billion people older than 60 years.

The annual budget in the United Kingdom for musculoskeletal disease is £10 billion, he said. Overall, 25% of surgical interventions in the secondary care sector are for musculoskeletal disease.

"We are big players in the game because we are 33% of the surgical workforce," Briggs said.

The world debt is $52 trillion as of mid-March 2014 and while GDP spending varies around the world, governments will prioritise spending. In the United Kingdom, he said 70 of 250 hospitals were in financial deficit at the end of the last financial year. Despite an increase of 1.91%, they actually needed an increase of 4.6% to stay neutral. He said the NHS will be underfunded by billions in 4 years and orthopaedic surgeons will have to get used to tariff deflation. Additionally, if orthopaedic surgeons don't address the challenge, general practitioners will continue to be under pressure not to refer patients for orthopaedic care.

"We can no longer hold our head in the sand," he said.

Increased demand gives orthopaedic surgeons a ‘golden opportunity’ to lead and ‘take control’

Speaker: Total joint replacement successful procedure despite implant failures

Survivorship, patient satisfaction and demand increase in the European Union.

The overall survivorship and patient satisfaction of total joint replacement is good despite implant failures and a changing patient population, according to a presenter at the 15th EFORT Congress – a combined programme in partnership with the BOA.

"Good satisfaction, good survival – what is the problem? The problem is not one of relative success, but the absolute issues that derive from having large numbers of people with small failure rates. In absolute terms that becomes quite expensive," J. Mark Wilkinson, PhD, FRCS(Tr&TOrth), said.

Speaker: Total joint replacement successful procedure despite implant failures

Survivorship, patient satisfaction and demand increase in the European Union.
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Because response assessment after neoadjuvant therapy is not yet standardised for patients with localised, high-grade soft tissue sarcoma, investigators researched tumour response following two kinds of neoadjuvant treatment and found mitotic count and the amount of viable tumour were factors that correlated with tumour prognosis.

Dimosthenis Andreou, MD, will present the results of the single-centre retrospective study on Friday, 6 June.

Andreou said in an interview prior to the EFORT Congress — a combined programme in partnership with the BOA that he and his colleagues were interested in finding any differences in disease-specific survival (DSS) and event-free survival (EFS) in the study cohort based on mitotic count (MC) and the amount of viable tumour (VT).

“Our results are promising. Our study shows that the mitotic count after treatment can be used to separate patients into distinct prognostic groups,” Andreou said.

From 2001 to 2011, a total of 118 patients underwent the combined treatment approach of neoadjuvant regional chemotherapy — isolated limb perfusion (ILP; 61 patients) or systemic chemotherapy (SC; 57 patients) followed up with surgical resection with intent to cure their localised, high-grade soft tissue sarcomas.

Median follow-up was 44 months in all patients and 56 months in survivors. The findings were based on the analysis of sarcoma specimens obtained during surgical resection done after either SC or ILP.

The investigators found that when the amount of VT was less than 10% following SC, patients had a 94% DSS at 5 years. The DSS was 61% at 5 years when the amount of VT was equal to or higher than 10% in these patients.

DSS and EFS did not correlate, however, with the amount of VT after ILP, according to the results.

The MC results showed a significantly lower DSS and EFS in patients after SC with an MC that was equal to or higher than 20/10 HPF compared to that in patients with a MC less than 20/10 HPF. In patients with a lower MC, the DSS was 84% at 5 years compared to a DSS of 33% in patients with a higher MC.

“Following ILP the survival benefit was more pronounced for patients with a MC less than 10/10 HPF who had a significantly higher DSS and EFS than patients with a MC equal to or higher than 10/10 HPF,” Andreou and colleagues wrote.

Andreou said, “For patients with isolated limb perfusion, we found the MC was a means to discriminate between patients with a good prognosis and patients with a poor prognosis.”

These findings must be interpreted correctly, he said, noting different chemotherapy plans could lead to a different correlation between mitotic count and prognosis. The vast majority of samples the investigators assessed were from undifferentiated sarcomas.

Reference
Andreou D. Paper #14-336; Presented at: 15th EFORT Congress – a combined programme in partnership with the BOA; 4-6 June, 2014; London.

Source info
Dimosthenis Andreou, MD, can be reached at Münster University Hospital, Albert-Schweizer-Str. 33, 48149 Münster, Germany; email: dimosthenis.andreou@ukmuenster.de.

Disclosure
Andreou has no relevant financial disclosures.
Limited hip range of motion may cause elbow injury in pitchers

Pitchers who limit the range of motion in their hips could cause injury to their elbows, according to a study presented at the American Academy of Orthopaedic Surgeons Annual Meeting. Researchers measured pre-season internal and external rotation, total arc, hip range of motion (ROM) in seven Division I collegiate pitchers in the prone position using a buddy Schoeny®.
Surgeons must consider a patient’s knee pain and the risk of disease progression when choosing unicompartmental, bicompartimental or total knee arthroplasty as an appropriate treatment, according to presenters during a debate forum session.

David W. Murray, MD, PhD; Sebastien Parratte, MD, PhD; and Jan Victor, MD, PhD, discussed the merits of the multiple compartment procedures compared to unicompartmental arthroplasty. They defended unicompartmental knee arthroplasty (UKA), bicompartimental knee arthroplasty and total knee arthroplasty (TKA), respectively, at the 15th EFORT Congress — a combined programme in partnership with the BOA.

In general, they agreed there is a need for each of these procedures based on the indications.

“UKA deserves a place in the toolbox of treating degenerative arthritis of the knee but the main enigma is nailing your indications and that’s your job,” Victor said.

“TKA has a better survivorship than UKA. That is clear in our minds. I think UKA is a logical operation that deserves its place with patient selection, in my view, as the weakest part of the procedure,” he said.

Murray argued that TKA is difficult to revise and defended UKA with data from national joint replacement registers that support the use of the prosthesis.

“Anterior knee pain does not compromise the procedure,” said Murray, who also reviewed the merits of fixed vs. mobile-bearing UKA procedures.

He defended the arguments that revision rates are high with UKA. A study conducted by Murray and colleagues demonstrated that most surgeons do five to 10 UKAs annually. “The optimum results occur if about 50% of the annual knee replacements are ‘unis,” Murray said.

Furthermore, he said complications are fewer with UKA than TKA.

With bicompartimental knee arthroplasty surgeons can better manage rotation according to their preferences and the patient’s needs, according to Parratte.

“You can manage size easily and you can manage the femorotibial joint line without compromise,” he said.

Ultimately, the use of bicompartimental knee arthroplasty vs. UKA comes down to management of the patellofemoral joint.

“The patellofemoral joint may be painful for the patient…that is my concern,” Parratte said.

Reference
Debate Forum — The Unis: Multicompartmental knee replacement. Hype or hope: Presented at: 15th EFORT Congress — a combined programme in partnership with the BOA; 4-6 June, 2014; London.

Disclosure
David W. Murray, MD, FRCSC, can be reached at Nuffield Orthopaedic Centre, University of Oxford, Oxford, OX3 7LD, United Kingdom. Sebastien Parratte, MD, PhD, can be reached at Aix-Marseille University Center for Arthritis Surgery at Hospital Sainte-Marguerite in Marseille, France. Jan Victor, MD, PhD, can be reached at Ghent University Hospital, Chairman of Orthopaedics, De Pintelaan 185, 9000 Ghent, Belgium.

Murray has personal and institutional support from Biomet. Parratte receives royalties from Euros and is a consultant to Graftys Adler Orthopaedics, Arthrex Inc., Zimmer, Smith & Nephew and Moximed. Victor receives royalties from Smith & Nephew and institutional support from Biomet, Corin, Materialise, Pfizer, Smith & Nephew and Zimmer.
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Debaters argue for and against primary cemented THA, cite outcomes, revision issues

Data on cemented and uncemented total hip arthroplasty in registries and the literature may guide surgeons in choosing between fixation types.

A classic debate about cemented vs. uncemented total hip arthroplasty held at the 15th EFORT Congress—a combined programme in partnership with the BOA—highlighted several points of contention that are often argued about concerning these two methods of total hip arthroplasty (THA) fixation, including long-term survivorship, issues of anatomic restoration and revision and implantation, as well as thigh pain.

“With cement in such widespread use around the world in hundreds of thousands of databases per year, the question is surely not whether cement brings advantages, it is how cement brings advantages to those hip replacements,” said Jonathan R. Howell, MBBS, MSc, FRCS(T&Ortho), one of four participants in the symposium, which was moderated by John Timperley, MBChB, FRCS(Ed), DPhil(Oxon), of Exeter, United Kingdom. Howell and Henrik Malchau, MD, PhD, spoke in favour of the motion that cemented THA, cite outcomes, revision issues, and implantation, as well as thigh pain.

“When cement in such widespread use around the world in hundreds of thousands of databases per year, the question is surely not whether cement brings advantages, it is how cement brings advantages to those hip replacements,” said Jonathan R. Howell, MBBS, MSc, FRCS(T&Ortho), of Carshalton, United Kingdom, argued against the use of cement to fix THA implants.

Bonnin gave 10 reasons why orthopaedic surgeons should perform cementless THA, which included the fact that hydroxyapatite on the surface of cementless THA prostheses helps facilitate bone bridging that promotes osteointegration and better implant stability.

He discussed his experience with the DePuy Synthes Corail Total Hip System, which he noted has success based on a compaction broaching concept that addresses the bioactive part of the bone.

“When we have primary stability, it is finished. It is done, but you have to respect the tips and tricks to have a good result. You must have good preoperative planning, use progressive size of the broaches, gentle compaction. You stop when it’s stable. You have to use a reamer only if you have a very narrow canal,” Bonnin said.

“In the primary difficult situation, I think uncemented stems are easier to use and are better,” he said.

According to Howell, cemented THA provides better restoration of the original hip anatomy and allows for intraoperative correction of inclination of the acetabular cup and of version.

“We’ve got to restore our patients’ offset,” Howell said.

This, he noted, is essential to a patient’s gait and function, and the ability of the surgeon to restore leg length, which are areas that support improved patient satisfaction after primary THA.

“After 30 years’ experience with cemented and uncemented hip replacement, I am sure that the general public would expect our profession to have a very, very clear idea of which form of fixation is better at restoring anatomy. But, there is virtually nothing in the literature on this issue. However, what is written in the literature favours cemented fixation,” Howell said.

The health economics are also better with cemented THA due to the reported potential reduction in revision rates at 5 postoperative years, he said.

References

Symposium: Cemented versus cementless hip: There are advantages to fixation using cement. Presented at: 15th EFORT Congress—a combined programme in partnership with the BOA; 4-6 June, 2014; London.

Source info

Michel P. Bonnin, MD, can be reached at Centre Orthopédique Santy, 24 Av Paul Santy, Lyon, 69008 France; email: bonnin.michel@gmail.com.

Jonathan Howell, MBBS, MSc, FRCS(T&Ortho), can be reached at Princess Elizabeth Orthopaedic Centre, Exeter, UK.

Endnotes

Bonnin received royalties from Tornier SA and DePuy Synthes. Howell received institution and research support from Stryker and the Devon Orthopaedic Trust and he is a consultant to Stryker.

EFORT heads to Prague for 2015 Congress

EFORT will head to Prague for the 16th EFORT Congress in May 2015.

The EFORT education committee, chaired by Enric Caceres, MD, chairman of the EFORT Scientific Committee, with ongoing support from the Specialist Societies, have created an exceptional programme covering differing topics from basic research to areas within daily practice of orthopaedics and trauma. The theme of the meeting is musculoskeletal infection.

“Injection was chosen for the subject of relevance for the Prague congress,” Caceres said. “Of all the complications that occur in orthopaedic surgery, these types of infections are most costly. For example, a prosthetic knee may affect revenue for several months — this is the main reason we chose this topic. Many of these activities in Prague will be shared with the European Bone & Joint Infection Society.”

The planned programme of the meeting will include topics on the treatment of extracapsular proximal femoral fractures, spine surgery safety, complex injuries around the elbow, post-traumatic hand soft tissue defects and dual the indication and limitations of mobility in THA.

In addition, lectures will be given by renowned international experts on general orthopaedics on topics that include RSA studies in implant research, economics of orthopaedic infections and current issues in tribology. Caceres said a focus on paediatrics is also planned, dealing with knee injuries in children.

“The EFORT Congress is chosen within 4 or more years in advance of the meeting,” Caceres said. “We try to diversify the venues serving the different locations of the countries comprising EFORT. Prague is a great opportunity to share knowledge among countries in North, South and Central Europe and Eastern Europe. It also has a great tourist attraction and we hope that the conference is a great success.”

We look forward to seeing you at the 16th EFORT Congress.

EFORT General Assembly elects new Executive Board members

The EFORT General Assembly has announced the composition of the 2014/2015 Executive Board at the 15th EFORT Congress.

EFORT Executive Board 2014/2015

Mr. Stephen R. Cannon
- EFORT President
Prof. Dr. Enric Caceres Palou
- EFORT 1st Vice President
Prof. Dr. Jan Verhaar
- EFORT 2nd Vice President (elected during GA London 3 June 2014)
Ass. Prof. Dr. Per Kjersgaard-Andersen
- EFORT Secretary General (re-elected during GA London 3 June 2014)
Dr. Manuel Cassiano Neves
- EFORT Immediate Past President
Prof. Dr. Maurilio Marconi
- EFORT Treasurer
Prof. Dr. Klaus-Peter Güntcher
- EFORT Member at Large
Dr. George Macheras
- EFORT Member at Large (elected during GA London 3 June 2014)
Prof. Dr. Leszek Romanowski
- EFORT Member at Large (elected during GA London 3 June 2014)
Hypoxia affects human mesenchymal stem cell secretome independent of nutrients

A study scheduled to be presented on Friday, 6 June, which was designed to characterise the secretome of human mesenchymal stem cells in ischemic, hypoxic or normoxic conditions, will show that cells release mediators based on nutrient availability, regardless of the oxygen level.

"The take-home message of my study could be hypoxia promotes chemotactic and pro-angiogenic potential of human mesenchymal stem cells (hMSCs) secretome," Joseph Paquet, PhD, of Paris, said in an interview prior to the 15th EFORT Congress — a combined programme in partnership with the BOA.

Better understanding

According to Paquet, it was important to study whether the benefits of hMSCs can be conferred through transitory paracrine effects via all kinds of secreted chemical compounds since much about using these cells in regenerative medicine is still unknown. The investigators used MSCs from the bone marrow of five patients undergoing orthopaedic procedures and exposed them to an ischemic environment of pO2=0.1%, serum deprived, an hypoxia environment of pO2=0.1%, 5g/L glucose, and a normoxic environment of pO2=21%. Hypoxia was sustained for 21 days using a hypoxic station (Biospherex; Lacona, N.Y., USA).

In the lab, when there is no chance for vascularisation and extremely low levels of oxygen, hMSCs die after 10 days, Paquet said.

"It is not so good. Therefore, we decided to focus on paracrine potential of mesenchymal stem cells in these conditions," he said.

Over 21 days Paquet and colleagues assessed various levels of mediators that are chemo-attractive, inflammatory and immunomodulative using conditioned media or by seeding the cells on matrix gel. In addition, they assessed various levels of mediators that cells release mediators based on nutrient availability, regardless of the oxygen level.

In vitro model

"By using an in vitro model of ischemia/hypoxia, we first demonstrated that hMSC secretome is deeply affected, quantitatively and qualitatively, by the presence or no nutrients (i.e., glucose) under hypoxia," the investigators wrote in the abstract.

They further noted the mediators produced by the hMSCs in the hypoxic environment they looked at showed signs of selectivity.

"Immunomodulatives and inflammatory mediators currently described to be secreted by hMSCs, under 'normoxic conditions', are not expressed and secretome profile is focused on pro-angiogenic and chemo-attractive chemical compounds," they wrote.

Paquet said what is new or different about his study is "the conditions where we worked because many studies consider hypoxic conditions at 5% of oxygen or 2%, but what we did was to study it in pO2=0.1%. At 5% of oxygen the cells behave like normal hypoxic conditions. I have not seen any study with very low oxygen."

Paquet said his group is working with adipose stem cells to see if they behave similarly in these same conditions.

Reference

Paquet J. Paper #2279. Presented at: 15th EFORT Congress — a combined programme in partnership with the BOA; 4-6 June, 2014; London.

Source info

Joseph Paquet, PhD, can be reached at Laboratoire B2OA, 10 avenue de Verdun, 75010 Paris, France; email: joseph.paquet8@gmail.com.

Disclosure

Paquet has no relevant financial disclosure.
Researchers found patients younger than 50 years old had fewer complications and better survivorship at the 30-year follow-up when they first underwent high tibial osteotomy rather than unicompartamental or total knee arthroplasty as treatment for medial compartment osteoarthritis, based on results of a study scheduled to be presented on Friday, 6 June, at the 15th EFORT Congress – a combined programme in partnership with the BOA.

"The patients who first had high tibial osteotomy were better than those we began with an arthroplasty in the long-term and the reason is when we began with high tibial osteotomy, there was only one revision or no revision," said Philippe Hernigou, MD, professor of orthopaedic surgery at CHU Henri Mondor, in Créteil, France, in an interview prior to the EFORT Congress. "When we first began with total knee or unicompartamental arthroplasty, there were several revisions," said Hernigou, who is scheduled to present the study.

In the retrospective study, Hernigou and colleagues compared 218 knees in 116 men and 70 women. Mean age was 42 years when the patients underwent high tibial osteotomy (HTO), unicompartamental knee arthroplasty (UKA) or total knee arthroplasty (TKA) for the patient younger than age 50 years over a follow-up period of 30 years. The author’s firm recommendation is to start with an osteotomy that will be, if needed, revised into a single TKA with which the patient can function to the end of his days. His conclusion makes sense to the surgeon who believes in a sustainability principle in the way he manages younger patients with OA and it must be a warning to those who believe that a partial or total inner amputation of the knee will allow patients to live to 85-years-old and lead an active life through an advanced age. However, we often recommend inserting artificial parts into the knee joint for moderate OA in patients younger than 60 years and may disregard the possibility of preserving that joint for another 15 years to 20 years with a well-planned, performed osteotomy. High tibial osteotomy will allow patients to retain their range of motion and continue to perform most of their preferred activities. Obviously, the surgery is only as effective as the rehabilitation and the patient’s acceptance of needed behavioral changes, weight loss, etc. To sell any surgery totally for pain relief reasons without instructing patients in the needed behavioural change is shortsighted at best, unethical at worst.

Is it possible that the teaching by the experts in our domain to the pupils has completely deleted osteotomy from among the surgical options? Lastly, if all of this is the consequence, is it justifiable to divide surgeons into arthroplasty surgeons and sports orthopaedic surgeons with osteotomy falling between the two groups? This would disregard the necessity of teaching comprehensive knee surgery, as we have taught our patients, so that the orthopaedic surgeon has the ability and competence to practice as a knee doctor, offering patients the right treatment at the right time from among a spectrum of procedures. These are the questions that go through our minds as we read the "truth" in this study by Hernigou and colleagues yet live with the realities of today where medical business overrides medical care.

**Results of high tibial osteotomy in young patients at 30-year follow-up were superior to UKA or TKA**

**Poor survival for arthroplasty**

Among the 138 patients who underwent HTO first, eight knees underwent no revisions. Thirty-nine knees underwent a repeat osteotomy, but did not undergo TKA, according to Hernigou.

Of the patients who underwent UKA or TKA first, 44 knees required one revision TKA, 28 knees required two revisions and eight knees required three revisions and one amputation. Surgeons performed 204 revision arthroplasties in patients who underwent UKA or TKA first, which were due to loose components (164), deep infection (8), instability (16) and patellar maltracking (14). When done at 10 years, the survivorship of the first revision was 80% for HTO, 75% for UKA and 77% for TKA, Hernigou said. When the first revision was at 20 years, survivorship was 50% for HTO, 0% for UKA and 35% for TKA. When the first revision was done at 30 years, survivorship was 6% for HTO and 0% for both UKA and TKA.

For the second revision done at 20 years, survivorship was 100% for HTO, 40% for UKA and 65% for TKA, and for a second revision done at 30 years, survivorship was 100% for HTO, 0% for UKA and 35% for TKA.

The patients who first had high tibial osteotomy were better than those we began with an arthroplasty in the long-term.

**Poor outcomes for revisions**

The International Documentation Knee Committee (IKDC) score was higher in patients who had repeat osteotomies or TKA after HTO, but it was lower in patients who had multiply revised arthroplasties. Results showed IKDC scores did not improve in patients with two or more revision arthroplasties. Hernigou noted the study did not account for differences in surgical techniques and arthroplasties used now and those used 30 years ago, which was a limitation of the study.

"Young patients should avoid arthroplasties. After three or four revisions, there is a high risk of complications, for example, infection or amputation," Hernigou said.

Reference:


**Contact**

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**Disclosure**

Hernigou has no relevant financial disclosures.
Wilkinson said in the European Union (EU), there has been an increased demand, as well as a changing patient population and epidemiology of total joint replacement (TJR). From 1990 to 2010, the incidence of hip osteoarthritis (OA) has increased 60% and more than 30 million people in the EU have OA. Currently, 25% of people aged 65 years or older have degenerative joint disease. In Eastern European countries, there also has been a shift in dominance of disability-adjusted life years to communicable diseases, with OA leading the increase.

As such, he said the demand for primary total hip replacement (THR) and the need for revision THR has increased in the EU. Currently, 765,000 patients have hip replacement surgery each year. He said 12% of implants fail within 10 years and each year 130,000 patients have revision joint replacement with an estimated direct treatment cost of €3,000 million. He said that failure causes as much pain and disability as untreated arthritis.

Additionally, the indications have also broadened with older and younger patients now undergoing (TJR). Orthopaedic surgeons are also challenging implants with greater mechanical forces.

“Hip replacement, by in large in joint replacement, is a successful procedure. [When] done well and with safe implants, survivorship and patient satisfaction is excellent and we should not lose sight of that message,” Wilkinson said.

He said changes in the epidemiology of TJR have increased the absolute cost of health care. Additionally, there have been changes in epidemiology in terms of infection and dislocation rate. Also, orthopaedic surgeons are seeing different adaptive and averse responses due to the different materials used in TJR, and “the biology of these is gradually being unraveled,” he said.

Reference:

Disclosure:
Wilkinson has no relevant financial disclosures.

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Briggs T. Introduction and managing the perfect storm. The international healthcare time bomb: An avalanche of orthopaedics. Presented at: 15th EFORT Congress: a combined programme in partnership with the BOA; 4-6 June, 2014; London.

Disclosure:
Briggs has no relevant financial disclosures.

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