July 2014 – **No. 139**

SICOT Newsletter

Should orthopaedic surgeons be running marathons?

In this issue

Should orthopaedic surgeons be running marathons?

Kenneth Cheung
SICOT Active Member – Hong Kong

This is often the first question I am asked when I tell my friends that I have, for the first time in my life, entered for the marathon in Hong Kong.

What my friends mean is that, as an orthopaedic surgeon, surely I should know better than to subject my knees and body to the constant pounding of a 42km race. Would that not just wear out my joints more quickly?

Indeed, this is a question that I have asked myself too. It would seem logical to a non-runner and therefore also to an orthopaedic surgeon. On the other hand, as an academic orthopaedic surgeon, I resorted to an evidence based medicine approach. From my review of the literature, there is no evidence of an increase in risk of joint replacement in long distance runners. Indeed, there is some suggestion that long distance running is associated with better weight control, a lower body mass index (BMI), and therefore mitigates other risks associated with the development of arthritis.

So armed with this knowledge, I began my running career five years ago. This was not an easy decision, since I hated running as a child and I hated the cross-country runs that I was forced to do at school. So, for many years I settled for a more sedentary life style and exercising on golf courses.

What triggered my first serious run were my friends. They entered for a 10km run in 2009 and invited me to join... it was pure peer pressure. What kept me going, however, were its positive benefits and the changes that I saw in myself.

Running is the most efficient form of exercise that I am aware of, meaning that you can burn the largest amount of calories in the shortest possible time. Coupled with a proper diet, you are guaranteed to lose weight and I lost 10 pounds. Although I wasn't really obese to start with, I do enjoy eating! Doing regular runs means that I can continue to enjoy eating without the fear of gaining weight.

Running is also a means of relieving stress. I used to have bad allergic rhinitis and eczema requiring the regular use of medications. I am convinced that both were aggravated by my long work hours and late nights. Since starting running, both conditions have disappeared.

Running improves stamina, particularly long distance running improves core muscle strength and endurance. As a spine surgeon, I am used to surgeries that take hours. In the past, after long surgeries, my muscles would complain the next day. This is no longer the case. Indeed my family also feels this too, as I am more alert, have more energy, and am more participatory in family events.

Seeing all these benefits and after graduating from my first 10km race, I decided to enter for a race each year, giving myself a target and forcing myself to practice. I became more ambitious in the subsequent few years, entering for the half-marathon (21km). With this increase in distance, I also started feeling the strains of running. I suffered from Iliotibial Band Syndrome, learnt the importance of stretching and the use of a foam roller; I also suffered from anterior knee pain, and learnt the importance of running form and shoe-wear.

Long distance running is more than just putting one foot in front of the other. There is a great deal of science and mechanics involved, how the foot should strike the ground to avoid excessive extension moments on the knee, how to train and use your gastroc-soleus to 'kick', how much knee bend should there be during the swing phase and how far forward should you plant your foot during stance, are all important elements of form that need to be considered to avoid injury. Then there is also the science of training, the interval runs used for increasing cardiovascular endurance, the weekend long runs to build tolerance, and the rest intervals and short runs to allow recovery. During the pre-race days and the race, one needs to remember the importance of carbohydrate loading, proper hydration and pacing.

All of the above became really important when I ran my first full (42km) marathon in February 2014. My pace was good and I was running as planned. I felt great at the half way mark and was still in good form by 30km. But despite my careful preparation, it was still insufficient to prevent

me from 'hitting the wall' by 34km. This is the phenomenon in long distance running when endogenous glycogen stores (liver and muscles) are depleted and there is a sudden feeling of fatigue. This hit me at the 34km mark, and for the next 6km it was a real mental challenge to put one leg in front of the other. The tenacity required to continue was huge, but I hung on summoning up every ounce of will-power that I could muster. It got a little easier as I reached the last 2km with by-standers cheering me on, and the adrenaline once again kicking in. I finished the marathon in 5 hours and 30 minutes, not fast, but just happy that I finished... intact and without injuries.

Reflecting back, it was an enormous sense of achievement, enduring the many hours of training, overcoming the mental and physical challenges involved made me a stronger and better person both physically and mentally. I am glad I took the challenge and I shall do so again next year.

If all this did not scare you and you are interested in running a marathon, don't worry, there are many resources on the web that will help you with your running form, training schedules, how to choose proper running gear, plan running routes and logging your runs (for example, www.runnersworld.com). If you have a smartphone, there are downloadable free apps that will help you plan your training and log your runs. I used a free app called 'RunKeeper', but this is just one of many.

So 'should orthopaedic surgeons be running marathons'? My answer... absolutely!

Surgical management of humeral shaft fractures

Humeral shaft fracture fixation: has the pendulum swung back?

Syah Bahari
KPJ Seremban Specialist Hospital and KPJ Healthcare University College, Malaysia

When discussing the best choice for operative fixation for humeral shaft fracture, one needs to know that historically most humeral shaft fractures are treated by conservative means with satisfactory outcome. The indications for operative fixation for humeral shaft fracture are polytrauma, floating elbow, segmental fracture, pathological fracture, open fracture, non-union, malunion, progressive vascular impairment and inability to maintain reduction with conservative treatment [1].

With this in mind, comparing open reduction and plate fixation and closed reduction and intramedullary nail fixation, the arguments will be on biology and principle of fracture healing, biomechanics, complications and current evidences at the moment.

For a humeral shaft fracture, relative stability at the fracture site is acceptable for fracture union. This can be achieved with the use of an intramedullary nail. With a remote entry point away from the fracture site, the biology of the fracture site will be preserved thus providing an optimum environment for fracture healing [2]. This is clearly not the case with an open reduction and internal fixation technique where extensive soft tissue stripping will likely devascularise the bone and affect fracture healing.

Biomechanically, intramedullary nail is a load-sharing device [3]. Comparative to the plate, the newer interlocking intramedullary nail can also provide compression at the fracture site in simple fracture and is arguably better in bridging of the fracture site in comminuted fracture.

When there is evidence of radial nerve injury, current evidence suggests that this is likely due to a neuropraxia and this is not an absolute indication for surgical intervention [4] unless there is evidence that the nerve is not recovering. However, for humeral shaft fracture without nerve injury, the risk of iatrogenic radial nerve injury is higher with either anterior or posterior approach when compared to intramedullary nailing technique [5]. Infection rate is also noted to be higher with an open approach and plating [5]. Furthermore, there is report on injury to the brachial artery with the open anterior approach that may complicate the open reduction technique [6].

When one looks at the literature on this issue, few randomised controlled trials (RCT) were done in the earlier part of this century. One notable RCT study was by McCormack et al. The endpoints of the study showed similar functional outcome, pain level and time to return to normal activities. The significant differences were between incidence of complication and reoperation rate which were in favour of the plating technique [7]. However, based on the current evidence in the literature, it is very difficult to argue which one is the best choice for operative treatment for humeral shaft fracture fixation. Current meta-analyses [5,8,9] on this issue were unable to draw definite consensus regarding which is the best choice for operative fixation of humeral shaft fracture. Dai et al found in their study that nailing technique has a lower risk of postoperative wound infection rate and lower risk of iatrogenic nerve injury [5]. Ouyang et al noted that the only advantage of plating over nailing technique was the associated shoulder symptom in nailing technique [8]. But, if one looks at the outcome of both techniques in terms of non-union, delayed union, pain level and functional outcome, there is no significant difference in the outcome based on these parameters [9]. Certainly, a large multi-centre randomized control trial is needed to solve this conundrum.

***References*:**
Please visit: www.sicot.org/?id_page=841

Surgical management of humeral shaft fractures: plating is the way forward

G.N. Solayar & F.J. Shannon
University College Hospital Galway, Ireland

Humeral shaft fractures account for 3% of all fractures and 20% of all humeral fractures [1]. The question regarding which fixation type would give the best results remains unanswered. It mostly boils down to the surgeon's own preference. In this article, we convey our argument on why one should perform open fixation via plating rather than intramedullary nailing.

An advantage offered by conventional plating versus intramedullary nailing is the reduced incidence of shoulder symptoms [2]. The literature suggests increased shoulder stiffness, rotator cuff insufficiencies and chronic shoulder pain associated with nailing. These symptoms are mostly secondary to the antegrade introduction of the nail (via the proximal humerus). In a similar fashion, retrograde humeral nailing has been associated with elbow stiffness, pain, ulna nerve problems and metal prominence. Humeral plating via open reduction avoids these preventable complications and is therefore, in our opinion, a superior option [3].

Next, neurological injury. The risk of radial nerve palsy following humeral shaft fractures is up to 18% with a higher risk noted especially following fractures in the distal third [4]. Though the majority represents neuropraxias, there is still a risk of permanent damage and poor long-term outcomes. Some surgeons prefer visualising, protecting and clearly documenting the nerve's appearance when dealing with humeral shaft fractures. It appears that nailing is associated with a higher risk of radial nerve injury though the jury is still out with regards to its significance compared with conventional plating [5,6]. An open incision would identify a ruptured/ transected nerve well, which might be amenable to early repair again improving chances of nerve recovery. There is evidence of immediate open exploration of the radial nerve following open fractures with radial nerve palsy though expectant treatment (exploration following 16-18 weeks) is advisable following closed fractures treated conservatively [7].

We would also like to point out the significant benefits of plating in terms of basic biomechanics. It offers surgeons the choice between achieving absolute stability through inter-fragmentary compression which leads to direct bone healing and relative stability through bridge plating which allows for indirect bone healing. Intramedullary nailing is not intended for providing compression across simple/oblique fractures which would allow for direct bone healing, but rather allows for relative stability and indirect bone healing. The option of a locking plate construct further expands its appeal as the benefits of this in osteoporotic bone are clear [8].

With respect to both plating and intramedullary nailing, we must address the literature on their respective union rates. The literature seems to show similar union rates for both options and thus, the debate continues [5]. A meta-analysis did show a lower re-operation rate following conventional plating compared to intramedullary nailing [2]. There are many factors that contribute to this discrepancy, among them, the ability to address soft tissue interposition, insults to the soft tissue envelope and achieving good fracture reduction.

In summary, we advocate open reduction and internal fixation with conventional plating. The advantages with regards to shoulder symptoms, improved biomechanics and the ability for direct fracture reduction are clearly attractive options. Large, high quality randomised controlled trials in the future would improve the literature with regards to union rates and complications between plating versus nailing.

References:
Please visit: www.sicot.org/?id_page=841

A three-year post-SICOT Fellowship Evaluation Report

Mohammed B. Abdelwahab
SICOT Associate Member – Khartoum, Sudan

Almost three years have passed since I did my Assiut/SICOT fellowship. I am now at a point where I can take a glimpse at my competencies before I joined it and then after, and what has gone well since I travelled back home.

To start with, I chose arthroscopy and sports medicine as a highly skilled branch of orthopaedics which is nearly non-existent in Sudan despite the huge number of patients who are in real need of the service.

I trained at the Department of Arthroscopy and Sports Medicine at the Assiut University Hospital (Egypt) for six months. We had busy operating lists with fascinating diversities which allowed me to benefit so much.

When I went back home I started practising knee arthroscopy, stepping upwards from simple scopes for doing meniscectomies, then invited new techniques of ACL reconstruction until I started training my junior staff and colleagues. A giant jump in my learning curve took place when I won the SICOT/AAOS scholarship and chose the knee course which was 'Knee injuries, getting patients back to the game'. It was the most unforgettable experience I have ever gone through. The combination of these two different experiences left a remarkable fingerprint on my career.

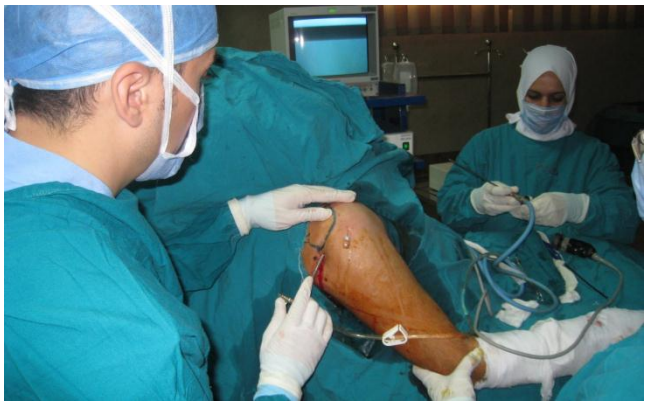
Let us turn the sail a bit towards Sudan. What are the real impacts of these rewarding experiences which have been offered to me through SICOT?

1. Making the service at hand and reasonably affordable if you compare it to the treatment cost when done outside Sudan (400$ vs. 3,000$ for simple knee scopes and 1,500$ vs. 6,000$ for ACL reconstruction). I established a separate OR for arthroscopy in my institute, which is a governmental hospital, for the first time since it was established. Now we do scopes for free for patients who are under the umbrella of service coverage.
2. Opening up the door for a new type of orthopaedic service gave it a special flavour to be adopted as a new area for publications since we do not have our own local data. This research activity is heralded by the registrars under training. The researches that have been born until now are:
   a. 'Incidence of medial pathological plica in Sudanese patients as a common cause of medial joint pain'. It had been submitted as a thesis to fulfil a MD degree.
   b. 'Early results of ACL reconstruction using BTB graft, our local experience, pits and falls'. It had been presented as an oral talk at a Sudanese annual conference.
   c. 'Incidence of meniscal injuries in Sudanese patients after sport trauma'. It is like an audit for provision of data for the national registry.

All this research work has been carried out during the last year. We are looking forward to more training and fellowships as such in the fields of shoulder, elbow, wrist, hip and ankle to enrich the field of training and research in my country.

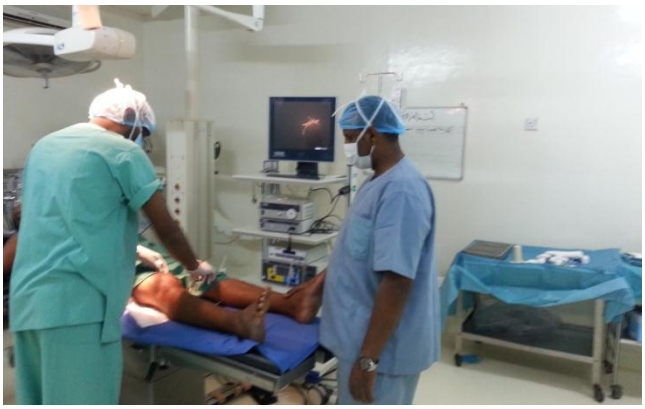
Now I am encouraged to go back again to the Assiut Education Centre joining new training activities. I attended a shoulder course and got a short-term fellowship for 1-2 months at my own expense because it is really worth it.

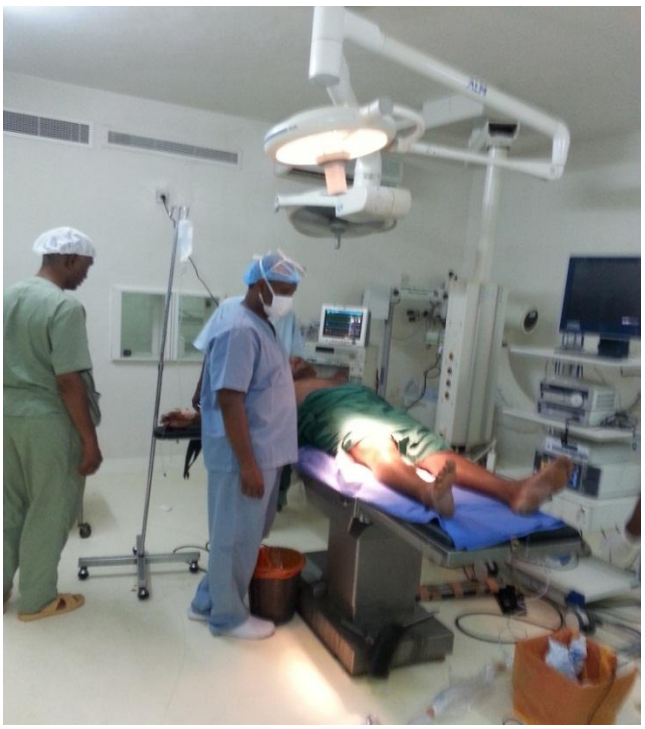
One word before I conclude: I would like to raise my hat to the SICOT family and give a special deep thanks first to Prof Galal Z. Said and Dr Hatem G. Said and then to my teacher in Sudan, Dr S. Shaheen, for giving me a chance to be part of this wonderful family. I must also acknowledge their support, advice and guidance.



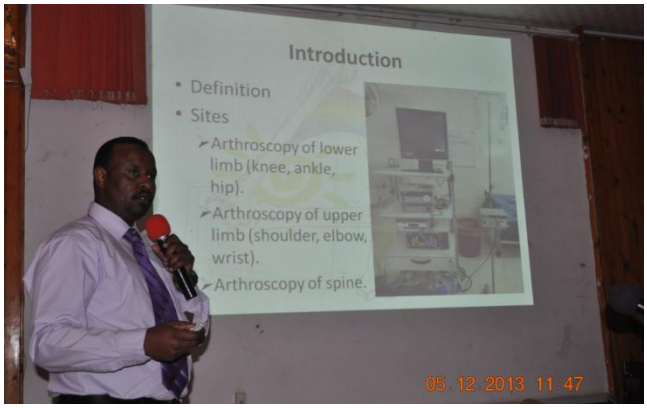
Surgery with Dr Hatem Said during the Fellowship in 2011

Below are some photos that reflect what has been achieved:





My newly opened OR



Input in educational activities

Playing a role in training

Report of the 'SICOT meets SICOT' Fellowship Programme at the Fondazione IRCCS Policlinico San Matteo, University of Pavia, Italy

Karampinas Panagiotis
SICOT Associate Member – Athens, Greece

It is with great pleasure that I report my experience as a Hip and Knee Reconstruction Fellow at the Fondazione IRCCS Policlinico San Matteo, University of Pavia, Italy, from 3 November to 1 December 2013.

I received with great pleasure the notification that I had been accepted for the 2013 'SICOT meets SICOT' Visiting Fellowship. I reached Pavia on 3 November 2013, after a quick flight from Athens to Milan, and I moved into the accommodation on the University campus which was arranged for me by the Orthopaedic Department. At this point I would like to thank Dr Stefano Marco Paolo Rossi. I deeply thank him for the warm welcome and for providing me with all the necessary directions for my stay. The next day I met Prof F. Benazzo and he accepted me in his team with great pleasure and enthusiasm. He was very friendly and I loved working and following him in every activity in the department.

Every working day started with a morning meeting, where details about patients admitted from the emergency department the day before, patients' nurses in the department, and the operating theatre schedule of the day were discussed in the presence of all consultants and ward nurses. I started attending the theatres with Prof Benazzo immediately. I had an opportunity to scrub-in as assistant in most of his cases and I was allowed to actively participate in each surgery. I also had the fortune to be present during the visit of different surgical teams from around the world, such as Japan and the United States, and hear him giving guidelines and technique tips on THA and TKA Revisions to very experienced surgeons.

Together with Prof Benazzo, there are three consultants whom I worked with in the Hip and Knee unit, Dr G. Zanon, Dr C. Pavesi and Dr Stefano M.P. Rossi. I was fortunate enough to operate with each one of them. The hospital, being a referral care centre, deals with a wide range of Hip, Knee and Sports Medicine disorders. The volume of cases operated here was really great. During my four-week stay, I participated in a total of 58 cases and was mainly interested in Primary Total Knee (TKA) and Total Hip Arthroplasty (THA), Revision TKA and THA, Unicompartmental Knee Replacement and Anterior Cruciate Ligament Reconstruction. I could assist in a wide range of these cases and accumulate great experience by the methods and techniques applied. I particularly enjoyed the teamwork of the operating theatre members and I was fascinated by the systematic preoperative and intraoperative planning of the operations. I also followed up the patients in the wards and in the outpatient visits, supervised and taught by Prof Benazzo. The nursing and paramedical staff were committed and contributed significantly to the care of the patients. It was a pleasure working with Prof Benazzo and he made every challenging surgery look seemingly simple. I was truly impressed with his technique and surgical outcome. Operating with him was an enjoyable experience, as he takes a keen interest in explaining every step of the surgery and taught me some great tricks.

I also assisted a number of cases with Dr Zanon and learned from him during some interesting Anterior Cruciate Ligament Reconstructions. He taught me some of his tricks and I loved his techniques, specifically the Double-Bundle Medial Patellofemoral Ligament Reconstruction with a Single Patellar Tunnel.

Finally, I wish to express my gratitude and appreciation for the hospitality, extended cooperation, friendship and constant support of Prof Benazzo during my stay. I will really miss the wonderful time I spent in Pavia. Overall, it was a great experience and I would thoroughly recommend this fellowship to my colleagues. I sincerely thank SICOT for providing me with this great opportunity.

Fondazione IRCCS Policlinico San Matteo

Young age and total knee arthroplasty: what is new in the literature?

Kamal Bali
SICOT Newsletter Editorial Board Member – London, Ontario, Canada

As the indications for knee replacement expand, total knee arthroplasty (TKA) in young patients is increasingly becoming an area of utmost research and discussion in the domain of joint reconstruction. The April 2014 issue of JBJS America carries two research articles focused on the subject. The abstracts of these articles has been summarised below.

ARTICLE 1:

Younger age is associated with a higher risk of early periprosthetic joint infection and aseptic mechanical failure after total knee arthroplasty
by Meehan JP, Danielsen B, Kim SH, Jamali AA, White RH.
in J Bone Joint Surg Am. 2014 Apr 2;96(7):529-35. doi: 10.2106/JBJS.M.00545.

Background:
Although early aseptic mechanical failure after total knee arthroplasty has been reported in younger patients, it is unknown whether early revision due to periprosthetic joint infection is more or less frequent in this patient subgroup. The purpose of this study was to determine whether the incidence of early periprosthetic joint infection requiring revision knee surgery is significantly different in patients younger than fifty years of age compared with older patients following primary unilateral total knee arthroplasty.

Methods:
A large population-based study was conducted with use of the California Patient Discharge Database, which allows serial linkage of all discharge data from nonfederal hospitals in the state over time. Patients undergoing primary unilateral total knee arthroplasty during 2005 to 2009 were identified. Principal outcomes were partial or complete revision arthroplasty due to periprosthetic joint infection or due to aseptic mechanical failure within one year. Multivariate analysis included risk adjustment for important demographic and clinical variables. The effect of hospital total knee arthroplasty volume on the outcomes of infection and mechanical failure was analyzed with use of hierarchical modeling.

Results:
At one year, 983 (0.82%) of 120,538 primary total knee arthroplasties had undergone revision due to periprosthetic joint infection and 1,385 (1.15%) had undergone revision due to aseptic mechanical failure. The cumulative incidence in patients younger than fifty years of age was 1.36% for revision due to periprosthetic joint infection and 3.49% for revision due to aseptic mechanical failure. In risk-adjusted models, the risk of periprosthetic joint infection was 1.8 times higher in patients younger than fifty years of age (odds ratio = 1.81, 95% confidence interval = 1.33 to 2.47) compared with patients sixty-five years of age or older, and the risk of aseptic mechanical failure was 4.7 times higher (odds ratio = 4.66, 95% confidence interval = 3.77 to 5.76). The rate of revision due to infection at hospitals in which a mean of more than 200 total knee arthroplasties were performed per year was lower than the expected (mean) value (p = 0.04).

Conclusions:
Patients younger than fifty years of age had a significantly higher risk of undergoing revision due to periprosthetic joint infection or to aseptic mechanical failure at one year after primary total knee arthroplasty.

ARTICLE 2:

Revision total knee arthroplasty in the young patient: is there trouble on the horizon?
by Aggarwal VK, Goyal N, Deirmengian G, Rangavajulla A, Parvizi J, Austin MS.
in J Bone Joint Surg Am. 2014 Apr 2;96(7):536-42. doi: 10.2106/JBJS.M.00131.

Background:
The volume of total knee arthroplasties, including revisions, in young patients is expected to rise. The objective of this study was to compare the reasons for revision and re-revision total knee arthroplasties between younger and older patients, to determine the survivorship of revision total knee arthroplasties, and to identify risk factors associated with failure of revision in patients fifty years of age or younger.

Methods:
Perioperative data were collected for all total knee arthroplasty revisions performed from August 1999 to December 2009. A cohort of eighty-four patients who were fifty years of age or younger and a cohort of eighty-four patients who were sixty to seventy years of age were matched for the date of surgery, sex, and body mass index (BMI). The etiology of failure of the index total knee arthroplasty and all subsequent revision total knee arthroplasties was determined. Kaplan-Meier survival curves were used to evaluate the timing of the primary failure and the survivorship of revision knee procedures. Finally, multivariate Cox regression was used to calculate risk ratios for the influence of age, sex, BMI, and the reason for the initial revision on survival of the revision total knee arthroplasty.

Results:
The most common reason for the initial revision was aseptic loosening (27%; 95% confidence interval [CI] = 19% to 38%) in the younger cohort and infection (30%; 95% CI = 21% to 40%) in the older cohort. Of the twenty-five second revisions in younger patients, 32% (95% CI = 17% to 52%) were for infection, whereas 50% (95% CI = 32% to 68%) of the twenty-six second revisions in the older cohort were for infection. Cumulative six-year survival rates were 71.0% (95% CI = 60.7% to 83.0%) and 66.1% (95% CI = 54.5% to 80.2%) for revisions in the younger and older cohorts, respectively. Infection and a BMI of ≥40 kg/m² posed the greatest risk of failure of revision procedures, with risk ratios of 2.731 (p = 0.006) and 2.934 (p = 0.009), respectively.

Conclusions:
The survivorship of knee revisions in younger patients is a cause of concern, and the higher rates of aseptic failure in these patients may be related to unique demands that they place on the reconstruction. Improvement in implant fixation and treatment of infection when these patients undergo revision total knee arthroplasty is needed.

A commentary by esteemed arthroplasty surgeon, Dr Kelly G. Vince, follows these articles and focuses on the key points highlighted by these research articles. Although both articles are level 3 studies, one is an institutional study (Aggarwal et al) while the other one (Meehan et al) is a large population-based study evaluating data all over the California state of the United States. Despite being completely different methodologically, both articles clearly document higher rates of aseptic failure in total knee arthroplasty patients under the age of 50 years. This is understandable as the younger population is likely to wear out a TKA sooner than their older counterparts.

With the advancement in the bearing surfaces and implantation techniques, the likelihood of early catastrophic mechanical failure of TKA even in a young active population group is very low. As Dr Vince points out, a well done primary TKA and a good first revision surgery should be able to serve a young patient through a lifetime with acceptable function. Unfortunately, this has not been consistently seen in these two studies as many young patients in the two studies faced their first revision within a year, rather than enjoying years of service by the artificial joint, because of infection or unsatisfactory function. To add to the pessimism as far as outcomes of TKA in young are concerned, Aggarwal et al also reveal the data on the number of first revisions that failed prematurely and eventually placed the limb in jeopardy.

One outcome, reported by Meehan et al, that is difficult to explain is the higher incidence of periprosthetic infection in the younger patients as compared to the older patients even after eliminating the confounding variables. Normal logic would imply higher immunity and protection from infection in youth. One explanation that these authors put forward is the higher incidence of post-traumatic arthritis in young patients. Specifically a previous history of arthrotomy, a recognised risk factor for infection, is likely to be more common in young patients with post-traumatic arthritis. However, a clear relationship between previous arthrotomy and aseptic loosening has not been established in the literature, and implant fixation issues in young (cemented vs. uncemented) are more likely to play a role in the pathogenesis of aseptic failure in this group of patients.

These studies reiterate the importance of patient education and understanding patient expectations. Knee arthroplasty continues to remain a good and reliable procedure for older patients as far as pain relief and function is concerned. Early failures reported in young patients due to unacceptable function are in part likely to result from unfulfilled 'unique expectations' than from high activity levels. Thus, the fact that an artificial knee joint can never match the performance of a normal human knee joint needs to be communicated to all patients (especially young active individuals) with utmost clarity.

Both studies are limited by their retrospective design and reliance on administrative data. Both are unable to draw any conclusions regarding survivorship of specific implant designs or knee fixation techniques in young patients. Although the study by Meehan et al (unlike Aggarwal et al) involves patient population operated all over the California state by multiple surgeons, it fails to identify the effect of individual surgeons. However, Meehan et al do identify decreased incidence of periprosthetic infections at high volume hospitals, which supports the concept of utilising specialty service hospitals in reducing the incidence of complications following TKA.

Despite their limitations, both these studies are an invaluable addition to the limited literature on outcome of TKA in young adults and are a must read for anyone with an interest and a predominant practice in knee arthroplasty surgery.

SICOT Webinars

SICOT/VuMedi Webinars

SICOT's mission is to spread knowledge about orthopaedics and traumatology throughout the world. Since the importance and popularity of online education is increasing every day, SICOT has been collaborating with VuMedi to provide online education to the global orthopaedics and traumatology community. This strategic cooperation with VuMedi has been initiated and managed by the SICOT Young Surgeons Committee. You will be able to participate live and interact with speakers at each webinar. The lectures will also be accessible for viewing later on from the SIGNEL (www.sicot.org/?id_page=490) and VuMedi (vumedi.com) websites. The list of webinars is available on the SICOT website.

SICOT Ortho Excellence Programme (OEP)

This programme has been organised under the aegis of SICOT Education. As conceptualized, a well-known international SICOT surgeon presents a webinar on the second Friday of every month. This is open to orthopaedic surgeons in India and other parts of the world. In India it is targeted to 5,000 surgeons. For more details please visit the OEP website at www.sicotoep.com or SICOT website at www.sicot.org/?id_page=675.

XXVI SICOT Triennial World Congress combined with the 46th SBOT Annual Meeting

Rio de Janeiro, Brazil – 19-22 November 2014

4th SICOT Educational Day

The SICOT Educational Day is an initiative undertaken by the SICOT Young Surgeons Committee. The aim of this day is to provide a comprehensive review course for residents and an evidence-based update for practicing surgeons on a specific theme at each SICOT meeting. The theme is selected in such a way that it is mutually beneficial to residents in their exams and to orthopaedic surgeons in their daily practice.

With the experience of three successful events we are pleased to announce the 4th SICOT Educational Day in Rio de Janeiro, Brazil, to be held on Wednesday, 19 November 2014 from 08:30 to 18:00. The theme for this year is 'Shoulder & Elbow'. We have invited expert Faculty from over ten countries to lecture on the course. The SICOT Moderators (Emmanuel Audenaert – Belgium, Hatem Said – Egypt, Vikas Khanduja – United Kingdom, Peter Yau – Hong Kong, Patricia Fucs – Brazil, Eric Tortosa – Panama, and Ashok Johari – India) have worked extremely hard to produce a great programme. The format of this year's Educational Day consists of short 10-minute lectures with case based discussions, interactive sessions and debates.

Registration fees:

SICOT Associate Members	EUR 75
SICOT Active Members	EUR 100
Non-Member Trainees	EUR 150
Non-Members	EUR 200

The full programme is available at:
www.sicot.org/?id_page=860

SICOT aisbl, Rue de la Loi 26 – b.13, 1040 Brussels, Belgium
Tel.: +32 2 648 68 23 | Fax: +32 2 649 86 01
E-mail: edsecr@sicot.org | Website: www.sicot.org