

Free Paper Session IX: Adult Joint Reconstruction II

9.1

HOW SATISFIED ARE OUR PATIENTS AFTER TOTAL KNEE ARTHROPLASTY?

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Introduction: Subjective patient satisfaction and patient reported outcomes after arthroplasty is becoming an increasingly important parameter of success. In Hong Kong, information regarding patient satisfaction after arthroplasty is lacking and we have no local data. This study aimed to determine the degree of satisfaction after TKR in our local population.

Methodology: 106 patients undergoing primary TKR in a public hospital were enrolled. Operating surgeons completed a standardised questionnaire regarding their prediction of the operated patient's ultimate satisfaction. At 6 weeks, 3 months and 6 months post-operation, patients completed a standardised satisfaction questionnaire.

Results and Analysis: 91% of patients were satisfied with their operation overall. The average satisfaction score of 8.6+/-1.7. 85% and 91% of patients were satisfied with the degree of pain relief and functional improvement after surgery respectively. Male gender and being on waiting list for <36 months was associated with higher satisfaction. Surgeon's prediction of patient's satisfaction with function was significantly positively correlated with patient reported satisfaction and post-operative New Knee Society Knee Satisfaction score.

Discussion and Conclusion: Overall patient satisfaction levels were high amongst the study cohort. Pre-operative factors affecting satisfaction have been identified that can form the basis for future study directed at the generation of a predictive model for satisfaction after total knee replacement which is of relevance for our local population.

9.2

SENSOR TECHNOLOGY V.S. MANUAL LIGAMENT BALANCING - HOW GOOD ARE WE AT BALANCING PRIMARY TOTAL KNEE REPLACEMENTS?

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Introduction: Technological advances have allowed for the development of sensors that are designed for use in total knee replacement (TKR) that aim to improve post-operative results. The Verasense Knee System (OrthoSensor Inc., Dania Beach Florida) is a sensor system which replaces conventional tibial insert trials that can provide quantitative measures of pressures in the medial and lateral tibiofemoral compartments of the knee.

Methodology: 25 consecutive total knee replacements were performed by a single surgeon. Ligament balancing was performed until the surgeon was satisfied that the knee was balanced using the conventional techniques. Pressure measurements were then made using the sensor. 25 matched patients that underwent TKR by the same surgeon served as the control group. Post-operative lower limb mechanical alignment, satisfaction levels, ROM, KSKS, KSFA scores and New Knee Society satisfaction scores were undertaken at 6 weeks, 3 months and 6 months after the operation.

Results and Analysis: 68% of knee replacements performed were found to be quantitatively balanced after insertion of the sensor. Mean body weight and BMI of unbalanced knees was significantly greater compared to those that balanced (62.3 v.s. 73.2 kg, p=0.046 and 26.1 v.s. 32.1, p=0.048). No significant difference was found between the two groups for rehabilitation outcomes, satisfaction scores and mechanical alignment.

Discussion and Conclusion: Conventional means of determining ligament balance can achieve quantitatively balanced total knee replacements in the majority of patients without need for further corrective measures. No short-term benefit was found with the use of this sensor technology.

9.3

LEARNING CURVES OF ROBOTIC ASSISTED VERSUS CONVENTIONAL UNICOMPARTMENTAL KNEE ARTHROPLASTY

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Introduction: Robotic assisted unicompartmental knee arthroplasty(UKA) can improve component alignment compared to conventional technique, yet the outcomes of both techniques are directly related to surgeon's operative volume. We aimed to compare the results of the initial few UKA operations using both techniques by one surgeon within the learning curve.

Methodology: We retrospectively reviewed the first 25 fixed bearing medial UKA performed using conventional spacer block technique(n=15) and imagefree robotic assisted UKA(n=10) by a single arthroplasty surgeon. Radiological outcomes including mechanical axis, tibial component coronal alignment and posterior slope were measured on lower limb long films. Clinical outcomes including Knee Society Knee Score(KSKS) and Functional Scores(KSFA) at 6 months were compared.

Results and Analysis: Tibial component was significantly more varus for conventional compared to robotic UKA(3.46° varus vs 0.99° varus, p=0.027). Posterior tibial slope was larger in the conventional group(10.1° vs 7°) but was not statistically significant(p=0.13). No differences were observed in mean postoperative limb mechanical alignment(conventional 5.7° varus vs robotic 4.2°varus, p=0.995). KSKS and KSFA at 6 months showed no significant differences between the two groups. 1 robotic UKA was revised for tibial collapse and 1 conventional UKA was revised for femoral component undersizing. Tourniquet times and operative times were significantly longer for robotic UKA compared with conventional(86 min vs 126 min, p=0.000086; 124min vs 160min, p=0.015, respectively).

Discussion and Conclusion: Unicompartmental knee arthroplasty is a technically demanding procedure with a small margin of error. Accurate component placement is vital and can be achieved by robotic assistance, especially for the less experienced surgeon.

9.4

DIFFERENCE IN UTILIZATION RATE OF UKA BY DIFFERENT SELECTION CRITERIA IN ASIAN POPULATION - A RETROSPECTIVE REVIEW

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Introduction: Unicompartmental knee arthroplasty has become a standard surgical treatment for isolated medial compartment osteoarthritis since its establishment 40 years ago. Yet the orthopaedic community has yet to reach a consensus on the patient selection criteria.

Methodology: This is a retrospective review of all primary TKAs and UKAs in a teaching hospital in 2 year period. Preoperative Knee X-Ray films and various clinical parameters [body weight, age, range of movement, deformity, PFJ status] were analysed. Commonly used criteria [Classical Kozinn & Scott, Oxford] are applied to assess the feasibility of patient as a UKA candidate.

Results and Analysis: A total of 652 TKAs and UKAs from 620 patients were analysed. Patient with inflammatory arthritis or valgus knee deformity were excluded. 44% of knee meet Oxford Criteria for mobile bearing UKA and only 8% meet classical Kozinn & Scott criteria.

Discussion and Conclusion: This is the largest study on Asian population to analyse the utilization of UKA by different criteria, with result concur with most literatures that strict K&S criteria leads to low utilization of UKAs. More long term data is needed to analyse the outcome of various subgroup to determine the most suitable criteria for Asian population.

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9.5

ANTERIOR CRUCIATE LIGAMENT INTEGRITY AS THE PREREQUISITE FOR UNICOMPARTMENTAL KNEE ARTHROPLASTY: CAN IT BE DETERMINED PREOPERATIVELY?

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Introduction: Intact anterior cruciate ligament (ACL) is the prerequisite for unicompartmental knee arthroplasty (UKA). Radiographic pattern of anteromedial osteoarthritis (AMOA) has been suggested by Oxford group for preoperative assessment of its integrity. The aim of this study was to investigate its accuracy and to explore any other parameters that can aid diagnosis.

Methodology: This was a prospective study. Patients with primary osteoarthritis and varus deformity scheduled for total knee arthroplasty (TKA) or UKA were recruited. Pre-operative assessment includes range of motion, routine knee radiographs and stress radiographs. Intra-operative assessment includes the integrity of ACL, the pattern of medial compartment wear and the osteoarthritis grading of other compartments. The finding pre-operative radiograph diagnosis of AMOA was compared with the intraoperative medial compartment wear pattern and integrity of ACL to assess its accuracy. The characteristics of ACL competent group (Group C) and incompetent group (Group I) were compared

Results and Analysis: A total of 102 knees from 75 patients have been recruited. For the accuracy of preoperative X-ray in detecting predicting medial compartment wear pattern intra-op, the sensitivity was 93% and the specificity was 81.3%. However, for its accuracy in predicting ACL integrity, the sensitivity was 78.9% and the specificity was 38.4%. The only significantly difference parameter between group C and I was mechanical femorotibial angle ($p=0.02$).

Discussion and Conclusion: Pre-operative radiographic finding of AMOA was accurate in predicting intra-operative medial compartment wear pattern but not the ACL integrity. TKA should be standby to prepare for intra-operative surprise.

9.6

JOINT LINE RESTORATION AND ALIGNMENT AFTER CONVENTIONAL VERSUS ROBOTIC UNICOMPARTMENTAL KNEE ARTHROPLASTY

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Introduction: Robotic technique improves accuracy of unicompartmental knee replacement. This study aims to directly compare the CT-based robotic, imagefree robotic and conventional techniques in relation to coronal alignment, joint line restoration and posterior slope.

Methodology: This retrospective case control study compared 175 unicompartmental knee arthroplasties performed using conventional spacer block technique ($n=52$), imagefree robotic system (Navio) ($n=57$) or CT based robotic system (Mako) ($n=66$) by a single surgeon between May 2012 and May 2018. Preoperative and postoperative short films were measured for anatomical axis, joint line height and posterior slope.

Results and Analysis: There were no significant differences between the groups for age, BMI, laterality, preoperative anatomical axis or slope. The mean post operative posterior slope was highest in the conventional group ($5.58^\circ \pm 2.72$), followed by Mako ($3.59^\circ \pm 2.02$), with Navio being the smallest ($2.45^\circ \pm 2.36$). The differences between groups were all statistically significant. If $>7^\circ$ was considered an outlier, the percentage of outliers were 25%, 3.5% and 5% for conventional, Navio and Mako respectively. Postoperative mean anatomical axes were $1.49^\circ \pm 2.75$ valgus for conventional, $1.25^\circ \pm 2.61$ valgus for Navio and $0.27^\circ \pm 2.93$ for Mako. Mako produced less overcorrection when compared to conventional ($p=0.023$) but was not significant compared to Navio ($p=0.053$). The joint line was significantly lower in conventional ($-1.57\text{mm} \pm 1.62$) when compared with Navio ($-0.3\text{mm} \pm 1.06$) ($p<0.001$) or Mako ($-0.26\text{mm} \pm 0.98$) ($p<0.001$). There were no significant differences between Navio and Mako ($p=0.65$).

Discussion and Conclusion: Both robotic systems produced less outliers in posterior slope, less joint line depression and less overcorrection. All these factors may reduce lateral arthritis progression and improve implant survivorship.

9.7

TRANSLATION, CROSS-CULTURAL ADAPTATION AND VALIDATION OF THE CANTONESE CHINESE FORGOTTEN JOINT SCORE FOR PATIENT WITH TOTAL KNEE ARTHROPLASTY

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Introduction: Forgotten joint score (FJS) is a new PROM assessment tool in total knee arthroplasty (TKA). It has been translated and validated in different languages including Mandarin Chinese FJS (MC-FJS). However, the subtle language and cultural differences between Mandarin Chinese and Cantonese Chinese might lead to misinterpretation and inconsistency. To address this, our institute has developed a Cantonese Chinese version of FJS (CC-FJS). The aim of this study is to investigate the validity and reliability of this culturally adapted FJS.

Methodology: This was a prospective cross-sectional study. Patients with primary TKA before evaluation in July 2018 to September 2018 were recruited. Exclusion criteria were dementia, psychiatric illness and post-operative local complications. A subgroup of cases selected for reliability test was more than 1 year post-operation. All cases were evaluated by WOMAC score and the newly developed CC-FJS. Translation and cross-cultural adaptation was performed sequentially with forward and backward translation, comparison for equivalence, pilot test and refinement before the final CC-FJS version was developed. WOMAC and CC-FJS was reported post-operatively at clinic. Validity of CC-FJS was assessed by Pearson correlation with WOMAC score, test-retest reliability by intraclass-correlation (ICC), internal consistency by Cronbach's α , distribution symmetry by skewness and time response by ANOVA. Floor and ceiling effect was compared at 0, 10th, 15th, 85th, 90th and 100th percentile.

Results and Analysis: Cases included were 164 for validity test, 126 for internal consistency and 42 for test-retest reliability. The mean age was 72 ± 7.5 (51-88) yr., mean follow-up time was 4.3 ± 3.8 (1-13) mth, There was moderate correlation with WOMAC ($r = 0.51$), good test-retest reliability ($r > 0.9$), excellent internal consistency ($\alpha = 0.96$), lower ceiling effect than WOMAC (9.8 vs 22.7% at 85th percentile, 7.5 vs 13.5% at 90th percentile), less skewness (0.09 vs -0.56), significant responsiveness to time ($p=0.002$) and excellent response rate (94.3%).

Discussion and Conclusion: CC-FJS is a promising tool for assessing outcome of TKA in Cantonese Chinese patients.

9.8

TOTAL KNEE ARTHROPLASTY: IMPROVES PATIENTS' PHYSICAL AND PSYCHOSOCIAL HEALTH – PACE QUESTIONNAIRE

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Introduction: To determine whether total knee arthroplasty (TKA) is associated with improvement in physical and psychosocial health.

Methodology: 35 patients with knee osteoarthritis requiring TKA were included. Patients were divided into group A (pre-TKA; $n=18$) and group B (post-TKA for over one year; $n=17$). Mean age of patients was 63.94 ± 11.94 in group A and 69.5 ± 13.5 in group B. Their physical and psychosocial condition were assessed using Patient-centred Assessment & Counselling for Exercise (PACE) questionnaire.

Results and Analysis: Mean BMI of patients was 23.45 for group A and 21.70 for group B ($P<0.05$). Group B were more physically active than group A. On average, in a week, group A exercised on 1.39 days and group B exercised on 5.06 days ($P<0.01$). More patients in group B (65%) had regular physical activity than group A (11%). Patients in group B were more confident than group A in maintaining regular physical activity ($P<0.01$). In Center of Epidemiological Studies-Depression (CES-D) scale, mean score was 11.06 for group A and 8.88 for group B ($P<0.05$). A higher percentage of group A (66.7%) were depressed than group B (29.4%). Group B (27.06) had higher self-esteem than group A (25.00) on Rosenberg self-esteem scale ($P=0.07$).

Discussion and Conclusion: TKA is very effective in relieving pain and improving knee function for late-stage knee osteoarthritis. Post-TKA patients were more physically active and had better psychosocial health than pre-TKA patients. A large-scale prospective study is suggested to assess for the need of more resources for TKA.

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9.9

TO RESURFACE OR NOT TO RESURFACE THE PATELLA?: A LONG TERM STUDY

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Introduction: Despite the widespread use of total knee replacement, whether to resurface or not resurface patella remains a subject of great controversy. This study aimed to examine the long-term results of total knee replacement with and without patella resurfacing using a single type of prosthesis.

Methodology: n/a.

Results and Analysis: 285 total knee replacements were performed in our centre from 2000-2002. 64.3% of the patella in these replacements were not resurfaced and 35.7% were resurfaced at the time of replacement. After excluding those that were lost to follow up, 223 patients were available for analysis. 84.8% were female. Average age at operation was 64.6+/-9.6 years. Average duration of follow up was 14.6+/-3.2 years. 30 patients (13.5%) of patients required revision procedures, performed at an average of 6.8 years post-operation. No patients underwent revision for secondary patella resurfacing. Reasons for revision include aseptic loosening (86.7%), bearing spin-out (6.7%), infection (3.3%) and heterotopic ossification (3.3%). Incidence of residual knee pain was higher in the resurfaced group (9.6%) compared to that in the non-resurfaced group (6.25%).

Discussion and Conclusion: The results of this study suggest that the incidence of knee pain after knee arthroplasty without patella resurfacing in the long term in general is low. Interestingly, patella resurfacing resulted in a higher incidence of residual knee pain compared to non-resurfaced patients. Most importantly, revision due to patella resurfacing was not needed for our patient cohort which brings into question whether patella resurfacing indeed is needed for a successful knee replacement.

9.10

LONG TERM SURVIVORSHIP OF HIGH TIBIAL OSTEOTOMY: 10 YEARS FOLLOW UP IN PWH AND AHNH

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Introduction: High tibial osteotomy (HTO) is a well established surgical procedure in selected patients with unicompartmental knee osteoarthritis. Traditionally, it was regarded as a buy time procedure to postpone knee replacement in younger patients. Long term outcome in local population was rarely reported. This study aims to review its long term performance.

Methodology: From Mar 2002 to Jul 2008, patients with varus knee deformities and isolated medial compartment osteoarthritis operated with medial-opening wedge HTO in Prince of Wales Hospital and Alice Ho Miu Ling Nethersole Hospital were recruited. Knee Society score and long term survivorship were assessed.

Results and Analysis: 31 knees in 23 patients were identified. Four knees in 4 patients had incomplete follow up, leaving 27 knees in 19 patients for analysis. The mean age at operation was 45.3 years (range 18 – 53 years). The mean follow up was 12.4 years (range 9.6 - 16.3 years). All patients had pain relief and improvement in function. The mean Knee Society knee score improved from 54.9 to 90.8. The mean Knee Society function score improved from 67.6 to 81.3. Two knees were revised to total knee replacement at 9.6 and 11 years. Two knee were put on waiting list for revision at 10.8 and 15.2 years. 23 knees (85.2%) were well functioning at latest follow up.

Discussion and Conclusion: In local population, medial-opening wedge HTO achieved good long term survival. It offers an alternative to knee replacement in well selected young patients.

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9.11

APPLICATION OF FAST TRACK REHABILITATION PROTOCOL IN HIGH TIBIAL OSTEOTOMY ALLOW EARLY RETURN TO NORMAL ACTIVITY: A LOCAL EXPERIENCE IN A HONG KONG JOINT CENTER

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9.12

A NOVEL MOBILE APP FOR DECISION MAKING IN KNEE PRESERVATION SURGERY: RELIABILITY BETWEEN ARTHROPLASTY NURSE, ORTHOPAEDIC TRAINEE AND JOINT SPECIALIST

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9.13

IS PRE-OPERATIVE MSU SCREENING USEFUL IN PREVENTION OF PERIPROSTHETIC JOINT INFECTION (PJI)

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Introduction: There was no standard guideline in Hong Kong suggesting whether routine mid-stream urine (MSU) screening should be used as pre-operative workup prior to Total Joint Replacement. Before July 2017, Alice Ho Miu Ling Nethersole Hospital (AHNH) Joint Replacement Centre practiced routine preoperative MSU screening for all patients receiving Total Joint Replacement. With rising evidence of collective researches, this practice had been challenged, so we carried out a retrospective cohort study to investigate the role of routine screening of urinary tract infection in prevention of prosthetic joint infection.

Methodology: This was a retrospective cohort study including all patients receiving primary total knee and hip arthroplasty from January 2016 to December 2017 in AHNH. Primary outcome was to look for any association (RR) and causal relationship between asymptomatic bacteriuria (ASB) and periprosthetic joint infection (PJI).

Results and Analysis: 466 cases of total knee and hip arthroplasty were included in the study period. 22 cases (22/466= 5%) with MSU positive result, among those only 21 (21/22=95%) cases were ASB. Prevalence of ASB and PJI was 4.51 % (21/466) and 0.6 % (3/466) respectively. There was a significant association between ASB and PJI (RR =40.36, 95% CI 3.80 – 428.35, p = 0.022). However, for the 2 cases of PJI with positive preoperative MSU results, the organisms grown from MSU culture (E. Coli, Proteus) were different from the joint culture (Staphylococcus, Streptococcus agalactiae, Group G streptococcus).

Discussion and Conclusion: Despite there was significant association between ASB and PJI, there was no direct causal relationship. Current evidence did not support the use of routine MSU screening prior to total joint arthroplasty.

9.14

10-16 YEAR FOLLOW UP OF HIGHLY CROSSLINKED POLYETHYLENE IN TOTAL HIP ARTHROPLASTY: WHAT FACTORS AFFECT WEAR?

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Introduction: Increase in acetabular component abduction and use thin liners in total hip replacements with conventional polyethylene has been shown to increase rates of liner wear. Whether this holds true for HXLPE liners is still a subject of controversy. Only a handful of studies with sufficient follow up durations and cohort sizes have examined this relationship.

Methodology: 93 THAs using a single brand of HXLPE liner and 28mm hip ball were performed in 87 patients. Linear and volumetric wear were determined using the Martell method. Presence of osteolysis and acetabular abduction angle was assessed.

Results and Analysis: Mean age at operation was 51.4 (29-78+/-14) years. Mean duration of follow up was 12.7 years (range 10-16 years). Osteolysis was not present. Mean linear and volumetric wear rate was 0.0331 mm / year (0-0.101+/-0.0268) and 5.569 mm³ / year (0-74.962+/-14.798) respectively. Patients over the age of 50 were found to have higher rates of linear wear. Positive correlation (Spearman's rho 0.256) was found between acetabular component abduction angle and linear wear rate (p=0.014). Thinner liners (≤8mm) had similar rates of linear and volumetric wear compared to thicker polyethylene (≥8.9mm) (p=0.447).

Discussion and Conclusion: HXLPE has shown good performance in patients with THA with minimum wear even at long term follow up. Proper acetabular cup positioning for THA with HXLPE liners is important in minimizing wear rates. Liner thickness does not appear to significantly affect wear rate.

9.15

HIGH VARIABILITY IN SAGITTAL PELVIC ROTATION IN FUNCTIONAL POSITIONS - CAN WE STILL SIMPLY FOLLOW LEWINNECK SAFE ZONE FOR ACETABULAR CUP POSITIONING?

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Introduction: The sagittal rotation of pelvis changes during daily activities, which potentially influences the functional anteversion and inclination of the acetabular cup in patients having total hip arthroplasty (THA). The aim of this study was to measure changes in pelvic tilt between different functional positions.

Methodology: Lateral images of consecutive patients, who were planned to have THA in study institution, were investigated with EOS imaging system in standard low-dose protocol. Pelvic tilts, defined as the angle between coronal plane and anterior-pelvic plane, were measured using Centricity system at three functional positions - standing, seating and flexed seating by two independent observers. Anterior pelvic tilt was assigned a positive value.

Results and Analysis: Pelvic tilts of 52 patients were measured (mean age: 60.7 ± 14.3 ; sex: M: F = 24:28). Mean pelvic tilts were 14.4° (-21.5° to 46.4°), -0.85° (-31.6° to 38.0°) and 10.5° (-20.5° to 47.2°) at the positions of standing, seating and flexed-seating respectively. The mean rotation changes from seating to flexed-seating was 11.4° (-54.9° to 50.7°), from flexed-seating to standing was 3.9° (-41.4° to 40.3°) and from standing to flexed-seating was -3.87° (-44.3° to 41.4°), and from flexed-seating to sitting -11.4° (-50.7° to 54.9°). In 20 patients (38%), the extent of sagittal pelvic rotation could lead to functional malorientation of cup when position changing from flexed-seating to standing.

Discussion and Conclusion: High variability of the sagittal pelvic rotation in functional positions among Chinese was observed. Cup positioning based on Lewinneck safe zone alone in supine position may fail to predict clinically significant changes in sagittal pelvic rotation when patients resuming functional activities.

9.16

NO HIP DISLOCATION IN ANKYLOSING SPONDYLITIS PATIENTS WITH TOTAL HIP REPLACEMENT PERFORMED WITH THE DIRECT LATERAL APPROACH

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Introduction: Total hip replacement (THR) is commonly performed in ankylosing spondylitis (AS) patients with severe hip joint involvement. The surgical approach depends on surgeon's preference, and there is no consensus in the literature. AS patients are more susceptible to anterior dislocation after THR because of pelvic hyperextension due to stiff kyphotic spine, regardless of the surgical approach. In our center, we usually adopt the direct lateral (Hardinge) approach for THR, including AS patients. We would like to review the outcome of THR in this group of patients.

Methodology: THR performed in AS patients in our center from 1994 to 2018 were reviewed. The surgical approaches, bearing and fixation of THR, all complications and revisions were recorded.

Results and Analysis: We have performed 58 THR in 39 AS patients. The direct lateral approach was used in 52 THR and the posterior approach was used in 6 THR. There was no hip dislocation in all the patients. 13 THR was found to have heterotopic ossification but most are mild (Brooker grade 1-2 in 12 THR). There was only 1 case of revision due to aseptic loosening.

Discussion and Conclusion: The direct lateral approach is safe to be adopted in THR in AS patients, with only several cases of mild HO and no anterior dislocation in our series despite anterior capsulotomy. This approach also eliminates the chance of posterior dislocation as the posterior capsule remains intact.

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9.17

IS HISTORICAL HIP PRECAUTIONS A MUST AFTER POSTEROLATERAL APPROACH OF TOTAL HIP ARTHROPLASTY ?

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Introduction: Historical hip precautions by activities daily living restrictions were used to reduce hip dislocation risk but necessity questioned by the advancement in surgical techniques. This prospective cohort study hypothesis total hip arthroplasty (THA) patients with minimal precautions (MP) would not increase dislocation rate compared with conventional precautions (CP).

Methodology: Fifty-five THA patients were recruited from March 2016 to June 2017 at Queen Mary Hospital. Surgeons allocated them to MP or CP group based on intra-operation stability. Occupational therapists adopted historical restriction to train CP group (n=29) but MP group (n=26) trained by minimal ADL restriction: hip flexion >90 degrees, internal rotation when turning and side lying sleeping without pillow. Dislocation rate was recorded, Harris Hip Score was measured by surgeon and EQ5D-5L quality of life (QOL) questionnaire were reported by patient at pre-operation and 12 months post operation.

Results and Analysis: Only two dislocation reported in CP group but none dislocation reported in MP group. Independent sample T-Test shown at 12 months post operation, EQ5D-5L index score (MP=0.91, CP=0.81) of MP was significant different from CP (p=0.05). Health perception VAS score (MP=81.73, CP=71.86) of MP group was significant difference from CP group (p=0.01).

Discussion and Conclusion: Minimal hip stability precautions proved to be better and safe for posterolateral surgical approach of THA cases compared with conventional hip precautions group. Less ADL restriction shown significant better QOL & health perception at one year post operation.

9.18

PREVENTION OF DISLOCATION WITH DUAL MOBILITY ARTICULATION IMPLANTS IN PATIENTS SUFFERED FROM NEUROMUSCULAR DISORDERS

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Introduction: Total hip arthroplasty is a commonly performed procedure worldwide. Instability and dislocation continue to be a significant cause of revision, with 22.5% reported by Bozlc in 2009. Neuromuscular disorder is a known risk factor for dislocation. Dual mobility articulation has been designed aiming at minimizing the risk of dislocation. This study aimed to review the dislocation rate in patients with underlying neuromuscular disorders in whom total hip arthroplasty with dual mobility articulation has been implanted.

Methodology: Patients with underlying neuromuscular disorder underwent total hip arthroplasty with dual mobility articulation implants were reviewed. Clinical results, dislocation rate and other complications were recorded.

Results and Analysis: From 2016 to 2018, four patients were identified. Underlying neuromuscular disorders included Parkinson's disease with history of stroke, poliomyelitis, epilepsy and spinal cord injury. Three patients underwent total hip arthroplasties for hip fracture or its complications, while one patient was indicated due to hip dysplasia. In the latest review, all patients had improvement in pain and no dislocation.

Discussion and Conclusion: Compared to traditional total hip arthroplasty implants, dual mobility articulation implants achieved a lower dislocation rate. This is advantageous to high risk patient groups such as those with underlying neuromuscular disorders. For further insight of the use of dual mobility articulation implants in neuromuscular disorder patients, recruitment of more cases and longer duration of follow up is needed.

9.19

UPDATED RESULT OF DIRECT ANTERIOR APPROACH TOTAL HIP ARTHROPLASTY IN ALICE HO MIU LING NETHERSOLE HOSPITAL (AHNH)

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Introduction: Direct anterior approach (DAA) is a recent hot topic in Total Hip Arthroplasty (THA). The major criticism was the steep learning curve and resulting complication. The main advantage is the low dislocation rate. This study is to report the updated result of DAA THA in AHNH.

Methodology: From December 2014 to July 2018, all DAA THAs done in AHNH were analyzed. The third case was excluded because of postoperative complication of cerebrovascular accident. It was performed on standard operating table without x-ray control. The details of operation had evolved throughout the period. Low restriction hip protocol was adopted after operation.

Results and Analysis: 51 DAA THA in 40 patients were performed. 11 patients had sequential bilateral THA. 12 were male and 28 were female patients. The average age at operation were 61.6 (37-82). 49 were cementless, one was cemented and one was Hybrid fixation of THA. There were 24 right and 37 left THAs. 10 hips were diagnosed to have avascular necrosis of femoral head, one femoral head subchondral insufficiency fracture and 40 osteoarthritis. The mean preoperative Harris Hip score were 55.88 (25-75). The mean Body-Mass-Index were 26.6 (18.5-33.8). After the learning curve of 24 cases, the mean operation time was 100.5 min (60-132) for the last 27 cases after the learning curve. The mean blood loss were 905 ml (200-2100). The mean haemoglobin level drop was 3.2 g/dL (1.6-7.3). The postoperative hip dislocation rate was zero.

Discussion and Conclusion: The learning curve of DAA THA is steep. The clinical outcome is satisfactory.

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EARLY RESULT OF PRE-OPERATIVE IRON SUPPLEMENTATION ON REDUCING BLOOD LOSS IN PRIMARY TOTAL JOINT REPLACEMENT IN SOUTHERN CHINESE FEMALE POPULATION

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Introduction: The objective of this study was to evaluate the efficacy of pre-operative iron supplement in reducing transfusion rate in female patients undergoing primary total joint replacement (TJR) without anaemia but with low iron reserve.

Methodology: Twenty patients (n = 20) undergoing TJR (inclusive of total knee arthroplasty and total hip arthroplasty) in Pok Oi Hospital were included in this study from Jan 2018 to Aug 2018. Inclusion criteria is haemoglobin 11.6-13.6g/dL (absence of anemia) and serum Ferritin level <100ug/L or 225pmol/L (indicating low iron reserve). Patients receive two forms of pre-operative iron supplement: oral Iron Sulphate (FeSO₄) and intravenous Monofer (Iron Isomaltoside 1000).

Results and Analysis: Preliminary data showed that group of patients who receive IV Monofer (n = 5), compared to the oral FeSO₄ group (n = 6), showed a significant reduction in haemoglobin drop (0.716 g/dL vs. 1.16 g/dL, p < 0.001). No patient required transfusion in both groups. Compliance issue was noted in 33.3% (n=2) in the oral FeSO₄ group. No other complication is noted in both groups.

Discussion and Conclusion: These early results supported the use of iron supplement in either oral or intravenous forms to reduce postoperative blood loss after TJR.

DOES VITAMIN E INFUSED HIGHLY-CROSSLINKED POLYETHYLENE IN PRIMARY HIP REPLACEMENT REDUCE WEAR RATES AND IMPROVE OUTCOMES? A SYSTEMATIC REVIEW AND META-ANALYSIS

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Introduction: Vitamin E highly-crosslinked polyethylene (HXLPE) was developed to reduce wear in total hip replacement (THR). This study aimed to provide independent synthesis of wear characteristics of Vitamin E treated HXLPE compared to HXPLE/UHMWPE. Secondary outcome measures were differences in revision rates and functional scores.

Methodology: We performed a systematic review; literature searches were conducted on 14th November 2017 (MEDLINE, Embase on Ovid, and the Cochrane Library). We included randomized controlled trials, analyses of joint registries, and case-controlled studies of primary THR comparing cups with a Vitamin E HXLPE bearing with bearing surfaces made from other types of polyethylene. Initial screening was performed by two independent assessors; disagreement resolved in discussion with a third reviewer. Studies were evaluated using the Cochrane risk of bias tool. Data extraction permitted meta-analysis.

Results and Analysis: 372 studies were identified on initial screening, 5 studies met the eligibility criteria. There was no significant heterogeneity between studies. There was variable risk of bias. At a mean of 35 months (range 20 to 60), Vitamin E HXLPE had significant advantages over highly crosslinked polyethylene with regards total femoral head penetration ($p=0.004$). Given the RSA measurement errors this may not be clinically significant. There were neither significant differences in revision rates nor Harris Hip Scores ($p=0.06$).

Discussion and Conclusion: At a minimum of three years follow-up there was reduced total femoral head penetration for Vitamin E HXLPE over HXLPE. This bearing surface does not as yet have clinically significant advantages in terms of revision rates or patient function over HXLPE.