median age; 70.8±7.9 years), and were allocated to a CPM group (n=31, with median age; 69.7±8.4 years). Patients were evaluated regarding knee function score (Hospital for Special Surgery (HSS) score), pain (Numeric Pain Rating Scale (NPRS)), knee circumference, knee range of motion, length of hospital stay, the day of knee flexion angle achieved 70 degrees and quality of life (Short-Form 12 Health Survey (SF-12)). Functional activities were evaluated using the Iowa Level of Assistance Scale and walking speed was evaluated using the Iowa Ambulation Velocity Scale. Also functional outcomes were evaluated with timed up and go (TUG) test and 10-meter walk test (10 MWT). Patients were evaluated preoperatively and at discharge.

Results: At baseline, demographic and anthropometric characteristics were similar in groups and there was no statistically difference between groups ($p>0.05$). It was determined that; the AROM group had better results in terms of reduction of pain severity ($p<0.001$). When the HSS knee scores were compared there was statistically difference between groups ($p<0.001$) and the HSS knee scores were lower in CPM group after surgery. There were no statistical differences in knee circumference, knee range of motion, the day of achieved active straight leg raise, length of hospital stay, the day of knee flexion angle achieved 70 degrees, quality of life, the IOWA help level score, IOWA walking speed score, 10 MWT score and TUG test score between groups after TKR ($p>0.05$).

Conclusions: In patients with TKR, application of repetitive AROM has better results than CPM to decrease pain severity, improve the HSS knee score. However, AROM has no effect on the early functional outcomes and the other early patients' outcomes. The current results suggest that application of AROM might be an effective method to decrease pain severity, improve the HSS knee score.

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AB0807 VALIDITY OF THE QUADRICEPS ANGLE MEASUREMENT IN PATIENTS WITH VARUS KNEE OSTEOARTHRITIS: COMPARE THE GONIOMETRIC AND PHOTOGRAMMETRY METHOD TO RADIOGRAPHY METHOD

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Background: Various measurement methods have been defined to assess the alignment of the lower extremities. The Q-angle measurement is reported to be associated with knee injury and patellofemoral dysfunction. The Q-angle has been assessed using radiography scans, goniometer and photogrammetry methods in supine and standing positions. The radiography method is accepted to be the most accurate and valid measurement technique in measurement the Q-angle. But as a result of being expensive and time-consuming, this invasive method is not mostly preferred in research and clinics. The goniometric measurement of Q-angle is practical because it is simple, requires inexpensive equipment (only a goniometer), and can be applied in a short time. Photogrammetry measurement technique is also an advantageous method for reducing measurement errors caused by goniometers and reduction of investigator errors.

Objectives: The aim of the present study, was to compare the clinical assessment of the Q-angle (goniometric and photogrammetric measurement methods) to a radiological assessment using radiograph (criterion validity) in patients with varus knee osteoarthritis.

Methods: The study group consisted of 15 (median age 68.6±11.9 years) patients with unilateral and bilateral varus knee osteoarthritis. Q-angle measurements were assessed on both lower extremities with three different goniometric methods (goniometric measurement method in standing position with quadriceps muscle relaxed; goniometric measurement method in supine position with quadriceps muscle relaxed; and contracted) using a 360° universal goniometer. After the goniometric measurements, photographs were taken with quadriceps muscle relaxed in standing position. For radiographic assessment, we used patients' lower extremity scanograms, which had been taken to determine the diagnosis and treatment from the Computer Patient Archiving System database.

Results: There was a good correlation between the radiographic assessment and photogrammetric measurement ($r=0.623$, $p<0.001$). Also a good correlation was observed between radiographic assessment and goniometric measurement (in standing position with quadriceps muscle relaxed; in supine position with quadriceps muscle relaxed; and contracted) ($r=0.676$, $p<0.001$, $r=0.616$, $p<0.001$, $r=0.676$, $p<0.001$, respectively).

Conclusions: According to our result, the photogrammetric measurement and the goniometric measurement appear to be valid alternatives to the radiographic measurement for determining the Q-angle. These alternative measures might be

used by clinicians and researchers to measure the Q-angle of patients with varus knee osteoarthritis in orthopaedic clinics.

Disclosure of Interest: None declared

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AB0808 COMPARING THE EFFECTS OF PHYSICAL THERAPY AND NON-STEROIDAL ANTI-INFLAMMATORY TREATMENT ON SLEEP QUALITY, QUALITY OF LIFE AND CLINICAL STATUS IN KNEE OSTEOARTHRITIS

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Objectives: We aimed to compare the effectiveness of physical therapy (PT) and non-steroidal anti-inflammatory drug (NSAID) therapy on sleep quality, quality of life and clinical status in patients with knee osteoarthritis (OA).

Methods: Demographic characteristics of the participants were recorded. MOS sleep scale, Nottingham Health Profile (NHP) and Western Ontario ve McMaster Universities Osteoarthritis Index (WOMAC) were used to evaluate sleep quality, quality of life and clinical status of patients before and after the treatment. All patients were divided into two groups as PT (57 patients) and NSAID (43) groups. The patients in the drug group were administered oral dexamethasone (50 mg/day, for two week) and the patients in the PT group were administered five times a week, total 15 seances hot-pack, ultrasound and transcutaneous electrical nerve stimulation therapy.

Results: Demographic characteristics, MOS sleep scale and NHP were similar at baseline in both groups ($p>0.05$). WOMAC pain, stiffness, and physical function scores before treatment were significantly poorer in the PT group than the NSAID group ($P<0.05$). There were statistically significant improvements on the MOS sleep scale (except snoring subscore, $p=0.05$, table 1), NHP (except social isolation, $p=0.209$) and WOMAC pain, stiffness, physical function and total scores of both groups after the treatments ($p<0.05$). Improvement was also similar when both groups were compared after the treatment ($p>0.05$). After the two treatment, significantly side effect was not observed.

Conclusions: PT and NSAID therapy has good effectiveness on sleep quality, quality of life and clinical status in knee OA.

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AB0809 FALL RISK AND RELATED FACTORS IN KNEE OSTEOARTHRITIS

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Background: Balance, as a complex task, may be affected in knee osteoarthritis (KOA) and this may cause postural instability and fall risk.

Objectives: The aim of this study was to determine the fall risk in patients with KOA with an objective computerized technique and to evaluate the potential risk factors for falls in these patients.

Methods: Patients with KOA and controls were included in this cross-sectional study. Gender, age, and body mass index (BMI) were recorded. Pain was evaluated with a visual analog scale (VAS). The Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) was used to assess the patients and the Falls Efficacy Scale International (FES-I) was used for the evaluation of fall efficacy. Knee radiographs were recorded with the Kellgren–Lawrence grading scale. Fall risk analysis was performed by using the Tetrax Interactive Balance System, which is a computerized posturography device.

Results: One hundred patients with KOA and 30 controls were included. The age, gender, and BMI scores were similar between the groups. FES-I scores were significantly higher in the cases than in the controls ($p<0.000$). Using a computerized system, significantly higher fall risk results ($p<0.000$) and significantly low, moderate, and high fall risk distribution were recorded in the cases than in the controls ($p<0.000$). Fall risk was significantly related to age, pain, and the WOMAC scores of the patients.

Conclusions: Using an objective computerized technique, our study demonstrated a higher fall risk in patients with KOA than in healthy individuals. This higher risk was shown even in the early radiographic phases of the disease related to age, pain, and dysfunction. An understanding of factors on postural control seems to be critical in successful fall prevention in these patients.

Disclosure of Interest: None declared

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AB0810 CORRELATION BETWEEN KNEE EXTENSOR MUSCLE STRENGTH AND GAIT ENDURANCE AFTER TOTAL KNEE ARTHROPLASTY

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Objectives: This study was undertaken to identify the relationship of objective physical performance and gait endurance after 1 month after total knee arthroplasty.

Methods: One-hundred ninety-five patients (32 males and 163 females; average age 72.6 ± 6.1 years) who underwent a primary total knee arthroplasty (TKA). Patients completed 6-minute walk test (6MWT) to assess gait endurance. Additional physical performance test including timed up and go (TUG) test, timed Stair Climbing Test (SCT), instrumental gait analysis for spatio-temporal parameters, and isometric knee flexor and extensor strength of the surgical and nonsurgical knees 1 month after TKA were measured. To evaluate self-reported physical function, self-reported disease-specific physical function measured by using the Western Ontario McMaster Universities Osteoarthritis Index (WOMAC) and self-reported quality of life measured by using EuroQOL five dimensions (EQ-5D) questionnaire. Visual analog scale (VAS) of post-operative knee pain was recorded each patient.

Results: In the bivariate analyses, the postoperative gait endurance had a significant positive correlation with the postoperative gait speed ($r=0.48$, $p<0.001$), cadence ($r=0.40$, $p<0.001$), stride length ($r=0.58$, $p<0.001$), postoperative peak torque (PT) extensor of surgical knee ($r=0.36$, $p<0.001$), postoperative peak torque (PT) flexor of surgical knee ($r=0.25$, $p<0.001$), postoperative peak torque (PT) extensor of non-surgical knee ($r=0.49$, $p<0.001$), postoperative peak torque (PT) flexor of non-surgical knee ($r=0.34$, $p<0.001$), EQ5D ($r=0.33$, $p<0.001$) and a significant negative correlation with TUG ($r=-0.46$, $p<0.001$), SCT-ascent ($r=-0.63$, $p<0.001$), SCT-descent ($r=-0.68$, $p<0.001$), WOMAC pain score ($r=-0.29$, $p<0.001$), WOMAC stiffness score ($r=-0.35$, $p<0.001$), WOMAC function score ($r=-0.43$, $p<0.001$).

In the linear regression analyses, the postoperative Visual analog scale (VAS) ($\beta=-6.91$, $p=0.03$), peak torque (PT) extensor of surgical knee ($\beta=0.56$, $p=0.04$) and peak torque (PT) extensor of non-surgical knee ($\beta=0.77$, $p<0.001$) were factors predictive of the postoperative 6MWT.

	Correlation coefficients (r)
TUG (sec)	-0.48*
SCT (sec)	
Ascent (sec)	-0.63*
Descent (sec)	-0.68*
Gait parameter	
Gait Speed (m/sec)	0.48*
Cadence (steps/min)	0.38*
Stride length (cm)	0.23*
Gait cycle duration (sec)	-0.03
Stance phase duration (% of gait cycle)	-0.11
Swing phase duration (% of gait cycle)	0.11
Double support duration (% of gait cycle)	-0.02
Single support duration (% of gait cycle)	-0.01
Strength (N·m)	
PT extensor of surgical knee (N·m/kg ² BW)	0.36*
PT flexor of surgical knee (N·m/kg ² BW)	0.25*
PT extensor of non-surgical knee (N·m/kg ² BW)	0.49*
PT flexor of non-surgical knee (N·m/kg ² BW)	0.34*
Deficit of extensor (%)	0.12
Deficit of flexor (%)	0.13
ROM (degrees)	
Knee flexion (°)	0.08
EQ-5D	0.33*
WOMAC	
Pain	-0.29*
Stiffness	-0.35*
Function	-0.43*

*Values represent correlation coefficients (r)

*p<0.05, **p<0.01

Abbreviations: 6MWT, 6-minute walk test; TUG, timed up and go; SCT, timed stair climbing test; PT, peak torque; ROM, range of motion; VAS, Visual Analog Scale; WOMAC, Western Ontario McMaster Universities Osteoarthritis Index; EQ-5D, EuroQOL five dimensions.

Conclusions: This study demonstrated that quadriceps muscle strength significantly influenced on gait endurance 1 month after TKA. Using variables measured

after surgery, it may be possible to predict with good accuracy for postoperative gait speed. In addition, these results could be of importance in determining effective rehabilitation strategies focusing on resistance training for improvement of gait speed early after TKA.

Disclosure of Interest: None declared

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AB0811 HYALURONIC ACID INTRA-ARTICULAR INJECTION VERSUS ORAL ATORVASTATIN IN THE TREATMENT OF KNEE OSTEOARTHRITIS

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Background: Osteoarthritis is a degenerative joint disorder of articular cartilage and is the most common type of arthritis in the elderly. Some studies have suggested that Hyaluronic acid¹ and atorvastatin² may have a role in the treatment of osteoarthritis.

Objectives: The purpose of the present study was to investigate and compare the potential effects of Hyaluronic acid and Atorvastatin on the symptoms of knee osteoarthritis.

Methods: We conducted an open, randomized, parallel study on patients with knee osteoarthritis. Eligible patients were those who met the ACR criteria of primary knee osteoarthritis, radiologically ascertained grade I or II of knee osteoarthritis on the Kellgren-Lawrence scale, had a pain score ≥ 60 (maximum 100) and age 50–70 years. Patients are not eligible if they had secondary osteoarthritis, systemic disease like diabetes, history of inflammatory arthritis, severe knee deformity (varus or valgus >50 degree), history of coagulopathy, severe cardiovascular disease, and active infections. Patients were enrolled from outpatient clinic of Imam Reza Hospital, Mashhad, Iran. We divided them randomly into two groups; Group 1 (n=35) received intra-articular Hyaluronic acid each week for three weeks, and group 2 (n=35) received oral atorvastatin 40 mg/day orally for six months. Symptoms were assessed by the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) at baseline and every month up to 6 months.

Results: Twenty eight patients (40%) were male and 42 patients (60%) were female. There was not a significant difference between 2 groups regard to sex ($P=0.626$). Mean age of patients was 57.9 ± 1.1 years. Groups mean age did not differ significantly ($P=0.710$). The pain and function scores were significantly decreased only in the Hyaluronic acid group in the second month ($P<0.001$). There was not any significant improvement in any group in the next months (figure 1).

Figure 1 Mean total WOMAC score during the interventions in the studied patients

Conclusions: Intra articular Hyaluronic acid improved the pain and function of patients with knee osteoarthritis in the second months after injection. Atorvastatin did not have any effect on the knee osteoarthritis symptoms during 6 months.

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AB0812 DIFFERENTIATED APPROACH TO THE TREATMENT OF OSTEOARTHRITIS WITH COMORBIDITIES

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Background: A significant prevalence of osteoarthritis (OA), the most disability joint disease in the world, which is important in the search for the new treatment. Analysis of modern therapy of OA was the reason for research efficacy of NSAIDs and SYSADOA on biochemical, inflammatory and immunological signs in the treatment of OA.

Objectives: Differentiated approach to the treatment of OA depending of presence of hyperuricemia.

Methods: 176 patients (144 women, 32 men) was examined, aged (59.71 ± 0.86) years with confirmed radiographic OA according to Kellgren and Lawrence scale. Division into groups was performed depending on treatment. For 14 days group 1 (n=30) received nimesulide 100 mg twice daily, and group 2 (n=30) - meloxicam