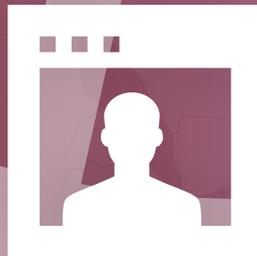


WORLD CONGRESS  
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MUSCULOSKELETAL  
DISEASES

# VIRTUAL CONGRESS

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AbstractBook

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### 1,25 DIHYDROXYVITAMIN D LEVELS ARE LOWER SUBJECTS WITH RENAL DYSFUNCTION: A CASE-CONTROL STUDY

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**Objective:** Not many studies have studied the relationship of 1,25(OH)<sub>2</sub>D, with calcium and 25(OH)D in subjects with renal dysfunction. To compare the relationship between 25(OH)D, 1,25(OH)<sub>2</sub>D with calcium in healthy and subjects with renal dysfunction.

**Methods:** A cross-sectional study was conducted at section of Chemical Pathology, Aga Khan University during the period of Feb 2015-Dec 2018. Total 189 patients were enrolled in this study with 153 healthy and 36 renal dysfunction patients with high serum creatinine (>1.3 mg/dl) were included. Serum samples were collected for markers of bone metabolism calcium, creatinine and vitamin D metabolites (25OHD and 1,25OHD). Serum calcium, creatinine were analyzed on ADVIA 1800, while 25OHD and 1,25OHD analyzed on Liaison-XL by electrochemiluminescence immunoassay. Means of vitamin D metabolites and marker of bone metabolism- calcium were compared between the two groups by Kruskal-Wallis test and association was assessed by Spearman's correlation.

**Results:** The median (Q3-Q1) age of study participants was 35 y (52-16.6) with majority being females (60.6%). For all subjects, 1,25(OH) VitD levels were found to correlate significantly with creatinine (Spearman r=0.254, p 0.002<0.001), 25OHD (Spearman r 0.249, p 0.03<0.001) and calcium (Spearman r 0.198, p 0.006<0.0001). On comparison of healthy and subjects with renal dysfunction, mean comparison showed that 1,25(OH) vitD and calcium were significantly lower, while creatinine was significantly higher in patients with renal dysfunction. In patients with renal dysfunction 1,25(OH) vitD was significantly correlated with calcium.

**Conclusion:** 1,25(OH)<sub>2</sub> VitD was significantly correlated with calcium. Circulating 1,25(OH)<sub>2</sub>D was significantly lower in renal dysfunction patients with 25OHD deficiency. This shows that routine replacement of 1,25(OH)<sub>2</sub>D (calcitriol) in renal dysfunction patients is not required for maintaining calcium homeostasis. Replacement with 25(OH)D (cholecalciferol/ergocalciferol) in renal dysfunction patients can increase 1,25(OH)<sub>2</sub>D.

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### THE INTRINSIC MECHANISM OF BIOMECHANICAL CHANGES DURING WALKING IN HIGH HEELS

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**Objective:** Although, a number of researchers have studied the effect of wearing high heels (HH) on human biomechanics during the gait, data regarding the association between high heeled

shoes and knee osteoarthritis (OA) are limited to explain the specific mechanisms. Therefore, the purpose of this study was to investigate the foot kinematics of high heel wearers and compare any differences with barefoot individuals using the Oxford Foot Model (OFM).

**Methods:** The OFM is a multisegment model and provides comprehensive foot movement details to be used to measure biomechanics characteristic for subjects during the HH gait compared with barefoot. The parameter included the hallux, forefoot, and hindfoot change in three planes.

**Results:** 15 healthy women (mean age: 22.5±1.8) were included. Based on an independent sample t-tests analysis, participants wearing HH demonstrated larger hallux dorsiflexion (22.55±1.62° vs. 26.6±2.33° for the barefoot; P=0.001), and less hallux plantarflexion during the initial stance phase (-4.86±2.32° vs. -8.68±1.13°; P<0.001). There were also greater forefoot adduction (16.15±1.37° vs. 13.18±0.79°; P<0.001). The hindfoot demonstrated a larger dorsiflexion in the horizontal plane (16.59±1.69° vs. 12.08±0.9°; P<0.001), greater internal rotation (16.72±0.48° vs. 7.97±0.55°; P<0.001), and decreased peak hindfoot extension rotation (-5.49±0.69° vs. -10.73±0.42°; P=0.001).

**Conclusion:** The intrinsic detailed mechanism of wearing HH has been recorded, and provides details of how the foot is affected. This dataset on foot kinematics during walking gait is an important basis for the explanation of foot deformity, foot disease and knee OA in relation to wearing high heeled shoes.

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### PHENOMENON OF ALEXITHYMIA AND LOCUS OF CONTROL IN PATIENTS WITH ANKYLOSING SPONDYLITIS

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**Objective:** To examine the role of alexithymia phenomenon and locus of control in the formation of psychosomatic personality traits in patients with ankylosing spondylitis (AS).

**Methods:** The group consisted of 45 patients suffering from AS. The selection of patients for the study was conducted in accordance with the recommendations of the group of experts working on AS (1). The patients' average age 44.94±13.8 y and average duration of the disease - 3.02±3.69 years. 89% of AS patients were males. We used Toronto Alexithymia Scale (TAS) (2), and the study of locus of control was conducted by "level of subjective control" questionnaire (3).

**Results:** A high level of alexithymia (77.35±1.8 points) was noted in AS patients. The level of alexithymia didn't depend on sex, age, duration and activity of the disease, but inversely correlated with the level of education (r=-0.37 with p=0.028) and internality in relation to the disease (r=-0.64, p=0.031). AS patients showed a significant trend towards external locus of control in common sphere (3.81±1.387), as well as on the scale of failures (3.51±0.64), family relations (4.18±0.55), professional relations

(2.74±0.98) and in relation to health (4.66±1.94). Correlation between the levels of locus of control with other clinical and psychological characteristics, such as age, activity, duration of disease and the level of neurotic disorders in patients hasn't been revealed.

**Conclusion:** Certain correlation between the alexithymia and some clinical and psychological characteristics is forming in AS patients. Characteristics of locus of control in AS patients can be predetermined by the peculiarities of personal relationships and the choice of certain behavioral strategies. These changes may influence on efficacy of therapeutic interventions and need for psychological adjustment in time.

#### References:

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3. Rean AA Prakticheskaya psikhodiagnostika lichnosti, SPb University Publishing, 2001, p.224.

## P248

### THE EFFECT OF INTRA-ARTICULAR HYALURONIC ACID IN PATIENTS WITH GONARTHROSIS

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**Objective:** Gonarthrosis is one of the most prevalent disorders in patients with generalised osteoarthritis, and especially in overweight patients. It is an important cause of invalidity or immobility in these patients, which contributes in a more urgent need for knee surgery. Intra-articular hyaluronic acid is an emerging alternative in patients that don't want or cannot undergo such surgery treatment. The aim of this study was to evaluate the effect of intra-articular hyaluronic acid injection in progression or relieving pain in patients with knee osteoarthritis.

**Methods:** This is a prospective study that included 72 patients with gonarthrosis undergoing intra-articular injection of hyaluronic acid to the aforementioned joint. The sample consisted in 49 female (68.1%) and 23 male patients (31.9%). Every patient was completed with a knee radiograph which diagnosed the grade of osteoarthritis according to Kellgren-Lawrence grading system, and a complete blood count in order to exclude other concomitant disorders. Intra-articular hyaluronic acid injection was performed according to all protocol rules, and a re-evaluation was appointed 3 months after the injection. Re-evaluation consisted in a new knee radiograph and a questionnaire about pain and joint functionality before and after injection.

**Results:** After gathering and evaluating all data, it resulted that in 43 patients (59.7%) had no progression on radiographic changes: 37 females (86%) and 6 male patients (14%). Forty-nine patients (68%) had a significant improvement in pain score 3 months after injection, of which 38 patients (77.6%) were females and 11 male patients (22.4%). Forty-five patients (62.5%) had a better function of the injected joint, of which 36 (80%) were females and (20%) male patients.

**Conclusion:** From this study there were shown good short-term results in radiographic progression, pain and joint function after hyaluronic acid injection in gonarthrosis. This treatment may be a good choice in patients with gonarthrosis who are not suitable or don't want to undergo knee surgery, that can improve their symptoms and life quality, and slow-down its progression.

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### MIR-181A-5P INCREASES AGGREGAN EXPRESSION VIA SILENCING ADAMTS-5 IN NP CELLS

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**Objective:** To explore the effects of miR-181a-5p on aggrecan expression in nucleus pulposus (NP) cells and the underlying mechanisms.

**Methods:** NP cells were cultured and then treated with 40 nM of miR-181a-5p mimic/inhibitor for 48 h. The expression of aggrecan and a disintegrin-like and metalloproteinase with thrombospondin type 1 motif-5 (ADAMTS-5) was detected by qRT-PCR and western blot. Bioinformatics were used to validate the binding ability of miR-181a-5p and 3'-untranslated region (3'-UTR) of ADAMTS-5. Based on the binding site in ADAMTS-5, pGL3-ADAMTS-5 3'-UTR (wildtype) and the corresponding mutant plasmids were constructed. These constructs were cotransfected into HEK293T cells with miR-181a-5p mimic (40 nM). Luciferase activity was detected following 48 h. In addition, NP cells were pretreated with ADAMTS-5 small Interfering RNA (siRNA) for 48 h, which was followed by treatment with miR-181a-5p inhibitor (40 nM) for another 48 h. Subsequently, both qRT-PCR and western blot were used to measure aggrecan expression.

**Results:** miR-181a-5p mimic markedly increased aggrecan expression but decreased ADAMTS-5 expression ( $P<0.01$ ); however, an opposite effect appeared in response to its inhibitor ( $P<0.01$ ). Bioinformatics prediction showed that there was one binding site for miR-181a-5p in ADAMTS-5 3'-UTR. Transfection with miR-181a-5p mimic reduced the luciferase activity of wildtype ADAMTS-5 3'-UTR ( $P<0.01$ ), but not its mutant ( $P>0.05$ ). Moreover, pretreatment with ADAMTS-5 siRNA almost fully reversed the inhibitory effects of miR-181a-5p inhibitor on aggrecan expression ( $P<0.01$ ).

**Conclusion:** miR-181a-5p can upregulate aggrecan expression in NP cells, which is associated with decreased ADAMTS-5 expression.

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### DELIRIUM AFTER SPINE SURGERY IN OLDER ADULTS: A PROSPECTIVE STUDY

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**Objectives:** To characterize the incidence, risk factors, and consequences of delirium in older adults undergoing spine surgery.