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POS1094 **SYNOVITIS IS FACTOR OF OSTEOARTHRITIS KNEE PROGRESSION IN PATIENTS WITH LESS THAN 5 YEARS OF DISEASE DURATION**

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Background: There are many studies about investigation of risk factors (RF) of knee osteoarthritis (OA) radiologic progression. Especially, in patients with small disease duration. At the moment, there are ambivalent of results of previous studies, lead to uncertain role of synovitis.

Objectives: The aim of study is to investigate relationship between knee OA synovitis and progression risk in patients with small disease duration during a follow-up period of 5 years.

Methods: Eligible patients had knee OA based on ACR criteria with x-ray confirmation; baseline (BL) disease duration less than 5 years. Patients were evaluated at BL and at 5-year follow-up, using the questionnaires, clinical examination, knee joints pain by visual analog scale (VAS), musculoskeletal ultrasound and X-ray. Unadjusted p-values are presented.

Results: Among 52 adults with knee OA (mean age $\pm$ standard deviation, 59.11 $\pm$ 8.95 years; 100% female) had the proportion of patients at BL 42.3% (n=22), 46.2% (n=24), 11.5% (n=6) by disease stage 1, 2 and 3, respectively. Patients were categorized into 2 groups by progression during 5 years from BL based on changes of radiological stage. After 5-years follow-up period the progression of knee OA was established in 14 patients (1 group) and in 38 patients (2 group) the progression by radiological stage was absent. BL patients' characteristics were similar across 1st and 2nd groups: mean age 58.29 $\pm$ 7.68 vs 56.05 $\pm$ 8.74, p>0.05; disease duration 3.43 $\pm$ 1.34 vs 3.47 $\pm$ 1.33, p>0.05. Individuals with knee OA progression had worse knee joints pain during walking (60.36 $\pm$ 18.33 vs 48.71 $\pm$ 17.81, p=0.043), higher body mass index (BMI) (34.45 $\pm$ 4.60 vs 28.92 $\pm$ 4.92 kg/m², p=0.001), higher frequency of knee synovitis by clinical examination (42.9% vs 10.5%, RR=4.07; 95%CI (1.3-12.3), p=0.01) and by musculoskeletal ultrasound (57.1% vs 18.4%, RR=3.1; 95%CI (1.38-6.96), p=0.009). At 5-years follow-up knee pain was significantly greater for 1st group (69.64 $\pm$ 18.49 vs 55.76 $\pm$ 12.76, p = 0.003), higher BMI (35.74 $\pm$ 5.83 vs 30.64 $\pm$ 4.64, p = 0.002), also higher frequency of knee synovitis by clinical examination (57.1% vs 10.5%, RR = 5.4 (95%CI 1.9-15.2), p=0.001) and by musculoskeletal ultrasound (50% vs 13.2%, RR=3.8 (95%CI 1.4-10.0), p=0.009). Spearman correlation coefficients between radiologic stage and OA progression factors were indicated: between radiologic stage and knee pain during walking (r = 0.34, p<0.05), BMI (r = 0.46, p<0.01), knee synovitis by musculoskeletal ultrasound (r = 0.41, p<0.01). Multivariate (discriminant) analysis was determined that synovitis is a significant predictor of radiographic progression (p < 0.05).

Conclusion: The proportion of patients with knee synovitis by clinical examination and musculoskeletal ultrasound data increased by 5-year follow-up from BL. Synovitis is a significant predictor of radiographic progression of knee OA in patients with small disease duration.

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Figure 1.

POS1095 **FOOD SOURCES OF DIETARY FIBRE AND RISK OF TOTAL KNEE REPLACEMENT RELATED TO SEVERE OSTEOARTHRITIS, THE SINGAPORE CHINESE HEALTH STUDY**

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Background: Although fibre intake was inversely associated with the risk of symptomatic knee osteoarthritis (KOA) in a US study, this association was partially confounded by lower body mass index (BMI) in those with higher fibre intake.

Objectives: We evaluated the association between fibre intake and its food sources, and the risk of total knee replacement (TKR) due to severe KOA.

Methods: We used data from the Singapore Chinese Health Study, a prospective cohort study that recruited 63,257 participants aged 45-74 years from 1993 to 1998. At baseline, we assessed diet using a validated 165-item semi-quantitative food frequency questionnaire, together with BMI and lifestyle factors. Incident TKR cases were identified via record linkage with nationwide hospital discharge database through 2017. We used multivariable Cox regression models to compute hazard ratio (HR) and the corresponding 95% confidence interval (CI) for risk of TKR.

Results: There were 2,816 cases of incident TKR due to severe KOA. Total fibre intake at baseline was not associated with risk of TKR after adjustment for confounders. Among the food sources of fibre, higher intake of legumes was associated with lower risk of TKR in dose-dependent manner; compared with those having the lowest quartile intake, HR (95% CI) was 0.86 (0.76, 0.96) for the highest quartile (p for trend = 0.004). This association was consistent after including BMI in the model, and homogenous across BMI categories. The consumption of other fibre sources, namely grain products, nuts and seeds, soy food, fruits and vegetables, was not associated with risk of TKR.

Conclusion: Intake of legumes, but not total fibre, was associated with a reduced risk of TKR. Further research is needed to replicate our findings, and to evaluate possible biological mechanisms that could explain the effect of dietary legumes in pathogenesis or progression of KOA.

Table 1. Hazard ratios (95% confidence intervals) for risk of total knee replacement according to intake of fibre (only shown total fibre and legumes): The Singapore Chinese Health Study (1993-2017).

Quartiles of energy-adjusted food intake	Q1	Q2	Q3	Q4	p for trend ¹
Total fibre					
Median, g/day	8.55	9.43	12.19	17.70	
Cases/ person-years	528/ 275,050	712/ 280,456	767/ 284,394	809/ 287,955	
Multivariate Model 1	1.00	1.08 (0.96, 1.21)	1.12 (1.00, 1.26)	1.18 (1.05, 1.32)	0.003
Multivariate Model 2	1.00	1.06 (0.95, 1.19)	1.09 (0.97, 1.22)	1.11 (0.99, 1.24)	0.088
Legumes					
Median, g/day	0.11	0.43	2.11	7.01	
Cases/ person-years	638/ 280,170	754/ 278,001	756/ 280,407	668/ 289,275	
Multivariate Model 1	1.00	0.97 (0.87, 1.09)	0.95 (0.84, 1.06)	0.84 (0.76, 0.94)	<0.001
Multivariate Model 2	1.00	0.98 (0.87, 1.09)	0.94 (0.84, 1.06)	0.86 (0.77, 0.96)	0.004
Multivariate Model 3	1.00	0.98 (0.87, 1.09)	0.95 (0.84, 1.06)	0.86 (0.76, 0.96)	0.004

¹Linear trend was tested by assigning to participants the median value of the quartile and treating this as a continuous variable. ²The grain products included noodles and pasta, rice, bread and pancakes, breakfast cereals, biscuits and crackers. Multivariate model 1: adjusted for age at interview, sex, year of interview, total energy intake, dialect, education level. Multivariate model 2: model 1 plus BMI, sitting duration, sleep, physical activity, smoking, history of hypertension, diabetes, coronary artery disease and stroke. Multivariate model 3: model 2 plus grain products, legumes, nuts and seeds, soy food, fruits and vegetables. Q = quartile

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