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Crystal diseases, metabolic bone diseases and bone diseases other than osteoporosis

FRI0220

ULTRASOUND IN ASSESSMENT OF DISEASE COURSE IN GOUT: THE 24 MONTH SINGLE-CENTRE PROSPECTIVE OBSERVATIONAL STUDY

E. Norkuviene¹, M. Petraitis¹, I. Apanaviciene¹, S. Ottaviani², A. Baranaukaite¹.¹Rheumatology, Lithuanian University of Health Sciences, Kaunas, Lithuania;²Rheumatology, Hôpital Bichat, APHP, Paris, France

Background: Today, despite the great potential of ultrasound (US) in gout, there is lack of longer duration US follow-up studies in this disease.

Objectives: The aim was to evaluate the 24 month's treatment effect of urate-lowering therapy on gout-specific US lesions and to determine the most representative target for US follow-up in gout.

Methods: A 24 month prospective observational single-centre study was carried out. Patients with gout diagnosis, confirmed by identification of monosodium urate crystals, with at least one tophus in the joint or tendon or one double contour sign (DC) on US, were selected for the study. The serum uric acid (SUA) level was assessed every three months. US evaluations of 36 joints and four tendons (m. triiceps and patellar) were performed every six months starting from the baseline, by one rheumatologist, blinded to the SUA levels and clinical data. Outcomes were: change in US features (tophus, DC count and tophus size) in joints and tendons according median of SUA level during the follow up period from M3 to M24. Two stages of SUA levels were defined: high, $\geq 360 \mu\text{mol/l}$; and low, $< 360 \mu\text{mol/l}$ (considered as within the treatment target). Correlations between US findings modifications in different locations, and between US findings modifications and SUA levels, were estimated by the Pearson correlation coefficient.

Results: We included 40 gouty patients (mean $\pm$ SD age 54.1 $\pm$ 9.7 years, 90.0% males, disease duration 8.5 $\pm$ 8.8 years). Mean $\pm$ SD baseline SUA level was 504.8 $\pm$ 32.9 $\mu\text{mol/l}$.

Among the 31 completers at M24, 21 (71%) achieved median SUA $< 360 \mu\text{mol/l}$. On month 24 the global number of patients with DC and tophus was reduced from 91% to 32% and from 100% to 64%, respectively. A total of sixty-four percent of patients in the study had not reached the US cure (DC or T being still found in at least one joint or tendon) after two years of treatment in the group with the median of SUA less than 360 $\mu\text{mol/l}$. The comparison of crystal clearing process in joints and tendons showed an excellent correlation of mean percentage change in total tophus number ($r=0.900$) and size ($r=1.0$) in joints and tendons, investigating 21 gout patients who participated in all five US study visits during the 24 months of follow-up. A strong positive correlation was observed between the changes of tophus size in left and right first MTP joints ($r=0.718$ [95% confidence interval: 0.370; 0.875], $p<0.001$) also between the changes of tophus size in toe and total intra-articular tophus size, measured by US ($r=0.726$ [95% confidence interval: 0.347; 0.925], $p<0.001$) on month 24 (compared to month 0). It was found a negative correlation between the mean SUA during 24 months follow up and the reduction in tophus size on month 24 ($r=0.602$)

Conclusions: Only one third of patients with median SUA $< 360 \mu\text{mol/l}$ were free of US gout signs after 2 years of treatment. Due to positive link between the change in tophus size in the first MTP joint and changes in the whole intraarticular urate pool, also tendons, the tophaceous deposition in the first MTP joint could be the most representative target for follow-up morphological analysis in gout clinical trials or monitoring the disease's activity in clinical practice with US.

Disclosure of Interest: None declared

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FRI0221

GOUT IS ASSOCIATED WITH AN INCREASED RISK OF CANCER – A NATIONWIDE COHORT STUDY INCLUDING OVER 70,000 GOUT PATIENTS

K. Zöbbe^{1,2}, D. Prieto-Alhambra^{3,4}, R. Cordtz^{1,2}, L. Møllemeijer⁵, P. Højgaard^{1,2}, L.E. Kristensen¹, L. Dreyer^{1,2,6}, ¹The Parker Institute, Bispebjerg and FrederiksbergHospital, Frederiksberg; ²Center for Rheumatology and Spine Diseases,Rigshospitalet/Glostrup, Hellerup, Denmark; ³GREMPAL Research Group, Idiap

Jordi Gol and CIBERFes, Universitat Autònoma de Barcelona and Instituto de

Salud Carlos III, Barcelona, Spain; ⁴Centre for Statistics in Medicine, NDORMS,University of Oxford, Oxford, UK; ⁵Danish Cancer Society Research Center,Copenhagen; ⁶Department of Rheumatology, Aalborg University Hospital, Aalborg,

Denmark

Background: In addition to the possible carcinogenic effect of chronic inflammation, gout patients may experience increased risk of cancer due to additional risk factors such as obesity, diabetes, sedentary lifestyle, smoking and increased alcohol consumption. There is limited data on the association between gout and different cancer types. We investigated the incidence of cancer among Danish gout patients compared to national cancer rates.

Methods: All patients diagnosed with gout in the period 1978–2015 according to the Danish National Patient Registry (including in- and outpatient hospital contacts) were linked with The Danish Cancer Registry to identify incident cancers. Follow-up for cancer started at date of first gout diagnosis and ended at date of cancer, death, emigration or end of 2015, whichever came first. Standardised incidence ratios (SIR) were calculated using sex and 5 year age and calendar-specific incidence rates for first primary cancers in the general population in Denmark.

Results: We observed 6205 first primary cancers among 70 591 gout patients. Compared to an expected number of 5308 in the general population, this corresponded to a SIR for any-cancer of 1.17 (95% confidence interval (CI): 1.14–1.20). SIRs were highest for cancer sites associated with smoking, obesity and excess alcohol consumption: mouth/tongue, pharynx, oesophagus, liver, pancreas, lung, pleura and kidney (table 1). Excess risks were also observed for colorectal cancer, breast cancer, endometrial cancer, multiple myeloma and other types of leukaemia but not for Hodgkin and Non-Hodgkin lymphomas.

Conclusions: Gout patients are at risk of cancer, especially cancer types associated with smoking, obesity and excess alcohol consumption, but also multiple myeloma and leukaemia. It is unknown if uric-acid lowering therapy and/or lifestyle changes reduce this risk.

Observed number (Obs) of incident cancers and standardised incidence ratios (SIRs) among 70 591 patients with gout.

Cancer site	Obs	SIR (95% CI)	Cancer site	Obs	SIR (95% CI)	Cancer site	Obs	SIR (95% CI)
Buccal cavity and pharynx			Respiratory system			Male genital organs		
Lip	14	0.74 (0.40–1.24)	Nasal, ear, sinus	11	0.89 (0.44–1.59)	Prostate	973	1.01 (0.95–1.08)
Tongue/mouth	88	1.57 (1.27–1.93)	Larynx	66	1.18 (0.91–1.50)	Testis	28	1.40 (0.93–2.02)
Pharynx	99	1.93 (1.57–2.35)	Lung	863	1.12 (1.05–1.20)	Urinary tract		
Digestive organs			Pleura	11	5.53 (2.76–9.89)	Kidney	214	1.80 (1.57–2.06)
Oesophagus	116	1.32 (1.09–1.59)	Melanoma	184	0.99 (0.85–1.15)	Renal pelvis and ureter	34	1.16 (0.80–1.62)
Stomach	149	1.04 (0.88–1.22)	Breast	385	1.17 (1.06–1.29)	Urinary bladder	462	1.07 (0.98–1.18)
Small intestine	20	1.28 (0.78–1.98)	Female genital organs			Lymphatic and hematopoietic tissues		
Colon	636	1.18 (1.09–1.28)	External	15	1.07 (0.60–1.76)	Hodgkin	10	0.84 (0.40–1.55)
Rectum	326	1.11 (1.00–1.24)	Cervix	29	1.21 (0.81–1.74)	Non-Hodgkin	124	0.77 (0.64–0.92)
Liver	158	2.24 (1.90–2.62)	Endometrial	114	1.75 (1.44–2.10)	Multiple myeloma	98	1.37 (1.11–1.67)
Gallbladder	50	1.26 (0.93–1.66)	Ovary	39	0.79 (0.56–1.08)	Lymphatic leukaemia	97	1.09 (0.88–1.33)
Pancreas	238	1.41 (1.23–1.60)				Other leukaemia	101	1.59 (1.31–1.94)