High prevalence of ultrasound detected monosodium urate deposits among children with clinically asymptomatic hyperuricemia.

POS0565

Petra Hanova[1], Martin Klein[1], Katerina Pavelcova[2], Jana Masinova[2], Kristyna Adamkova[2], Pavel Jesina[3], Blanka Stiburkova[2,3]

[1]Institute of Rheumatology, Prague, Czech Republic, [2]Institute of Rheumatology, Molecular biology, Prague, Czech Republic, [3]Charles University-First Faculty of Medicine and General University Hospital in Prague, Department of Pediatrics and Inherited Metabolic Disorders, Prague, Czech Republic

Introduction

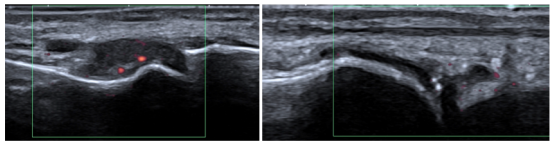
Gout is the most common type of inflammatory arthritis in adults and rare in pediatric population. Both gout and asymptomatic hyperuricemia (AH) are associated with chronic deposition of uric acid crystals in the joints, tendons and other tissue. These depositions may be easily detected by ultrasound (US). There is only limited knowledge about frequency of joint changes in pediatric population with primary asymptomatic hyperuricemia in the literature.

Objective

The aim of the study was to to determine the frequency of US changes in population with pediatric onset of AH.

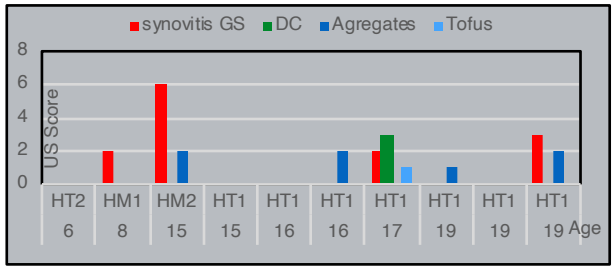
Results

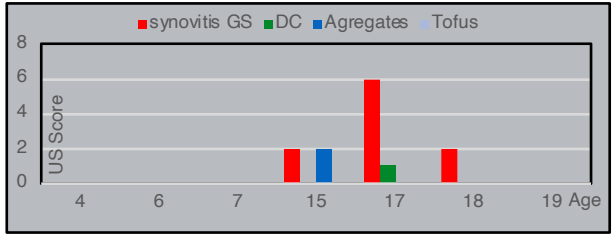
510 joints and 90 groups of tendons were examined. AG were found in 4 patients (26,6%, SD 0,43), DC in 2 patients (13,3%, SD 0,3), tophus in 1 patient in MTP1 (6,6%, SD 0,2). Mild synovitis was found in 7 patients (46,6%, SD 0,5). Most changes were found in young adolescents 15-19 years old with known hyperuricemia of at least 2 years



Distribution of US changes in children with asymtomatic hyperuricemia and wild-type or alelic variants of ABCG2* in age groups

*HT1/HM1 – heterozygot/homozygot for ABCG2 variant: c.421C>A, rs2231137
HT2/HM2 - heterozygot/homozygot for ABCG2 variant: c.34G>A, rs2231142





Methods

15 patients with pediatric onset of AH (0-19 years of age)

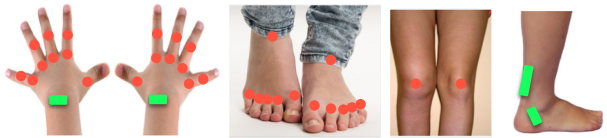
- clinically asymptomatic, no history or signs of renal diseases
- mean duration of AH at time point of US investigation: 2,6 ys (SD 1,1).

Definition of hyperuricemia:

- men 15-18 years > 420 µmol/L
- women and children under 15 years > 360 µmol/L
- 2 measurements taken at least 4 weeks apart:

The cohort was previsously characterised in detail, included sequencing analysis of main urate transporter ABCG2[1,2].

Every patient underwent US assessment of 34 joints and 8 tendons of both hands and feet. 2 experienced sonographers (IO agreement 0,89). OMERACT scoring system was used to detect double contour (DC), aggregates (AG), tophi. Synovitis and tenosynovitis were assessed in Gray scale and Power Doppler setting (0-3 grade severity score). Both kidneys were examined to exclude nephrolithiasis.



Conclusions

This is the first report on US changes in the pediatric population with AH. A surprisingly high frequency of US-detected deposits was observed. According to previously published data from the Japanese population, most changes were found in young adolescents, with a possible association with a longer duration of AH before diagnosis. Due to the limited number of patients, further studies are needed to confirm our findings.

References

1)Bohata J, et al. Arthritis Res Ther. 2021 Jul 10;23(1):186.
2) Stiburkova B, et al. Arthritis Res Ther. 2019 Mar 20;21(1):77.
3)Ito S, et al. BMC Pediatr Oct 2020;482.

Funded by Ministry of Health (MH), Czech Republic (CZ), NU22-01-00465, and RVO 00023728.