PP10. EVALUATION OF SKIN TEMPERATURE USING LIQUID CRYSTAL AND INFRARED THERMOMETERS IN CHILDREN ATTENDING SPECIALIST PAEDIATRIC RHEUMATOLOGY CLINICS

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Background: Temperature examination of skin overlying joints is a routine part of clinical assessment for joint inflammation. Studies have used infrared thermometer skin temperature measurement as an outcome measure [1]. Little is known, however, regarding normal range of skin temperature, or degree of increase of skin temperature in normal and inflamed joints, in children.
Aims: To describe temperature measurement of skin overlying joints in children attending paediatric rheumatology clinic. To compare performance of liquid crystal thermometer (LCT) and infrared thermometer (IRT) measurement with clinician hand temperature assessment and joint activity.
Methods: Assessment of bilateral knee and ankle skin temperature was undertaken in children attending rheumatology outpatient clinic appointments. Measurements were made using LCT and IRT. Clinician assessment of joint activity (inflamed/non-inflamed) and temperature assessment using back-of-hand (normal or increased temperature) was recorded. 36°C (IRT) and ≥36°C (LCT) cut-offs were used to categorize thermometer measurements (>36°C defined as increased temperature) and κstatistics were used to assess agreement between these and clinician assessments.
Results: Fifty children were assessed. LCT data was obtained for all individuals (range <35°C* to 37°C; mode 35); IRT data for 38 individuals (range <35°C* to 37°C; median 35.3). Kappa statistics of inter-method agreement were as follows: LCT *vs* hand: 145 joints, 70% inter-method agreement, κ 0.21 (95% CI 0.06, 0.36); LCT *vs* joint activity: 200 joints, 66% inter-method agreement, κ 0.10 (95% CI −0.05, 0.24); IRT *vs* hand: 145 joints, 74% inter-method agreement, κ 0.02 (95% CI −0.15, 0.19); IRT *vs* joint activity: 152 joints, 68% inter-method agreement, κ 0.03 (95% CI −0.14, 0.19). (*LCT and IRT did not measure below 35°C and 34°C, respectively.)
Conclusion: Commercially available thermometers did not measure the range of children's joint temperature seen in this small study. Over the range of temperature measured by LCT and IRT, slight/fair inter-method agreement was demonstrated between LCT and hand temperature assessment. LCT and IRT temperature measurements demonstrated poor agreement with clinical assessment of joint activity. Further work is needed to define the range of joint temperature in normal and inflamed joints and to explore the clinical utility of thermometers in assessing joint inflammation.
Disclosure statement: The authors have declared no conflicts of interest.

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PP11. ASSESSMENT OF RADIOGRAPHIC PROGRESSION IN PATIENTS WITH SYSTEMIC JUVENILE IDIOPATHIC ARTHRITIS TREATED WITH TOCILIZUMAB: 2-YEAR DATA FROM TENDER

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Background: A phase 3 trial (TENDER) demonstrated the efficacy of the IL-6 receptor inhibitor tocilizumab (TCZ) in patients with systemic JIA (sJIA).
Aims: This analysis investigates progression of radiographic joint damage in patients with sJIA treated with TCZ for up to 2 years in TENDER.
Methods: 112 patients aged 2–17 years with active, refractory sJIA of >6 months' duration and an inadequate response to previous NSAIDs and oral corticosteroids were enrolled. Patients were randomized 2:1 to receive TCZ according to body weight (12 mg/kg <30 kg or 8 mg/kg >30 kg) or placebo i.v. every 2 weeks for 12 weeks. Patients received open-label TCZ in the ongoing long-term extension. Radiographic progression was calculated as change in adapted Sharp–van der Heijde (aSH) score and/or Poznanski score, assessed on hand and wrist radiographs, from baseline to weeks 52 and 104. Radiographic progression was indicated by a positive aSH score change or negative Poznanski score change. Clinical efficacy endpoints included ACR Pediatric (Pedi) 70/90 responses.
Results: Baseline and >1 year post-baseline aSH and Poznanski scores were available for 47 and 33 patients, respectively. Patients with assessable aSH/Poznanski scores had disease duration of 5.2/4.8 years, 21.3/19.2 active joints, 20.0/18.2 joints with limitation of movement and ESR of 53.9/59.2 mm/h. At weeks 52 and 104, there were 20 and 19 patients, respectively, with aSH progression, and 8 and 6 patients, respectively, with Poznanski score progression. Median change in aSH score from baseline to weeks 52 and 104 were 0 and 0.5, respectively (Table 1). Median change in Poznanski score from baseline to weeks 52 and 104 were 0.3 and 0.17, respectively.
Conclusion: On average, patients with sJIA did not experience noticeable progression of radiographic damage over 2 years of treatment with TCZ.
Disclosure statement: C.D. is a full-time employee of Roche Products Ltd. All other authors have declared no conflicts of interest.

TABLE 1 Radiographic progression and clinical efficacy endpoints

	Week 52	Week 104
aSH score ($n = 47$), median (IQR)	0.00 (–8.70 to 4.00)	0.50 (–7.50 to 12.00)
Poznanski score ($n = 33$), median (IQR)	0.30 (–0.02 to 1.03)	0.17 (0.01 to 1.04)
ACR Pedi 70 ($n = 112$), *n/N* (%)	92/106 (86.8)	57/65 (87.7)
ACR Pedi 90 ($n = 112$), *n/N* (%)	67/106 (63.2)	46/65 (70.8)

IQR: interquartile range.

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PP12. PREDICTING PAIN OVER TIME IN JIA: RESULTS FROM THE CHILDHOOD ARTHRITIS PROSPECTIVE STUDY

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Background: Pain is the most common symptom of JIA and has been linked with disease activity. However, disease activity only explains modest amounts of variance in pain, suggesting predictors beyond clinical factors may be relevant.
Aims: To predict, at first presentation, children who are likely to have poor pain outcomes and how these children differ from those that improve.
Methods: Participants were children with new JIA who were followed systematically in the Childhood Arthritis Prospective Study (CAPS) cohort, with baseline data for the 100 mm visual analogue scale (VAS) for pain, available. A two-step approach was adopted for this analysis. Firstly, pain trajectories were modelled in children with a pain score recorded at presentation and at least one follow-up visit (up to 5 years) using a discrete mixture-model. Secondly, multinomial logistic regression was used to determine the association between baseline variables and trajectory groups (95% CI). These variables included the core outcomes [active and limited joint counts, physician's global assessment (PGA), parent/patient general evaluation (PGE), childhood HAQ (CHAQ) score], gender, age at onset and disease duration.
Results: 957 children were included. A three-group trajectory model was selected as the most clinically relevant (Figure 1) and included a persistently-low pain group (trajectory 1), a pain-improvement group (trajectory 2) and a persistently-high pain group (trajectory 3). Children in the pain-improvement and persistently-high groups differed significantly at presentation, compared with the persistently-low group children. Higher pain at baseline predicted membership of the persistently-high group [RRR 1.1 (95% CI 1.05, 1.1)] and pain-improvement group [RRR 1.1 (95% CI 1.1, 1.1)] compared with the persistently-low group; and predicted membership in the pain-improvement group compared with the persistently-high group [RRR 0.98 (95% CI 0.97, 0.99)]. Both higher CHAQ scores and older age at onset predicted membership in the persistently-high group compared with both the persistently-low group and the pain-improvement group. Longer disease duration at presentation predicted membership in the persistently-high group [RRR 1.03 (95% CI 1.01, 1.04)] and the pain-improvement group [RRR 1.02 (95% CI 1.001, 1.03)] compared with persistently-low group.
Conclusion: Even when adjusting for clinical outcome variables, participants who present earlier in their disease, are younger at disease onset and report less pain and functional problems upon presentation are less likely to report pain over time. Age at onset, functional problems and pain at presentation differentiated between high levels of pain which improved or persisted over time.
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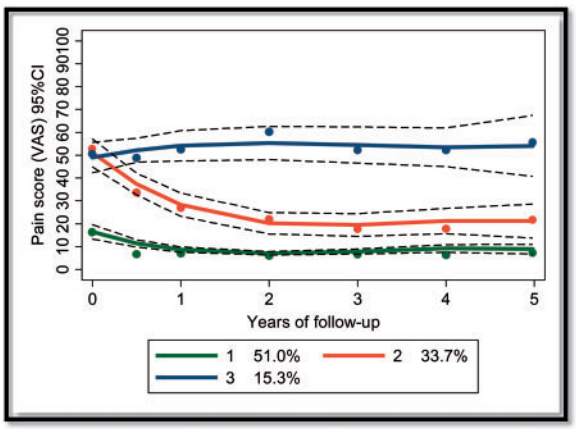

PP13. INTRAVENOUS METHOTREXATE: A SINGLE-CENTRE EXPERIENCE

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Background: MTX is an antimetabolite and anti-folate drug used in the treatment of inflammatory conditions. Low-dose MTX is used to treat a wide range of childhood rheumatological conditions. MTX is the first-choice steroid sparing DMARD to treat JIA, with up to 75% of JIA patients in recent registries having used MTX at some time in their disease course [1]. Neither oral nor i.v. MTX are licensed for use in childhood. Pre-filled, pre-dosed MTX syringes, metoject (Medac) for s.c. use are licensed for JIA in those over 3 years of age for polyarticular forms of JIA who have not responded to NSAIDs [2]. While the drug is licensed for children over 3 years of age with JIA, it is often prescribed for those under this age and for other conditions due to the lack of other available licensed medications.
Aims: We present our data on the use of i.v. MTX over a 4-year period within a tertiary paediatric rheumatology centre.
Methods: A computerized database was created in 2011 from which the data were obtained.
Results: As shown in Table 1, the routine use of i.v. MTX began in 2010. Intravenous MTX was used for the following reasons: inability to tolerate other forms of MTX; poor compliance; ease of administration when tending i.v. biologic infusion; lack of disease control despite MTX (s.c./p.o.) and biologic agent, before moving to an alternative biologic agent.
Conclusion: From our experience i.v. MTX is a safe, well tolerated and useful alternative to other forms of MTX in children with rheumatological conditions.
Disclosure statement: The authors have declared no conflicts of interest.

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TABLE 1 Results

Year	No. of patients receiving i.v. MTX in year	No. patients new starting i.v. MTX	No. of patients stopping i.v. MTX	No. of patients on i.v. MTX alone	Single dose i.v. MTX whilst waiting for s.c.	No. of patients on i.v. MTX in conjunction with biologic agent	Total no. of i.v. MTX infusions given
2011	12	8	1	2	1	9	155
2012	13	3	4	2	1	10	122
2013	13	3	0	0	1	13	118
2014 (until July 2014)	12	3	6 (4 transitioned to adult services)	0	0	12	99