Juvenile Idiopathic Arthritis and Role of Anti-CCP Antibody

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Sir,

Juvenile Idiopathic Arthritis (JIA) is a WHO/ILAR endorsed; internationally accepted umbrella term that has replaced all previously used nomenclatures including Juvenile Rheumatoid Arthritis (JRA) and Juvenile Chronic Arthritis (JCA). The chief clinical feature of JIA is persistent joint swelling in the absence of any defined cause, which begins before the age of 16 years. The term JIA covers at least seven clinical subtypes of arthritis.[1,2] Although classification of diseases without knowing the exact cause is difficult and somehow preliminary it is particularly important to recognise that 95% of arthritis affecting children and adolescents is clinically and immune-genetically distinct from rheumatoid arthritis (RA) in adults.[1] In contrast to other juvenile auto immune connective tissue diseases the true RA is difficult to define.

I would like to discuss two cases of chronic inflammatory arthritis of juvenile onset, which were presented to physician in their adulthood. Both had different duration of diseases and both were classified as JIA. Case One: A 18-year-old girl was presented with history of bilaterally symmetrical joint pain involving metacarpophalangeal (MCP), proximal interphalangeal (PIP), wrist, elbow, knee, ankle and metatarsophalangeal (MTP) joints with early morning stiffness of more than 1 hour for 3½ years. General and systemic examination was normal. Musculoskeletal examination showed evidence of synovitis at all MCP, MTP and wrist joints bilaterally. Case Two: A 27-year-old female was presented with complain of cough, breathlessness and vomiting for three days. She had history of bilaterally symmetrical joint pain involving MCP, wrist, elbow and knee joints with early morning stiffness of more than 1 hour for 14 years. She was on herbal medicine and over the counter treatment for pain since last few years. Patient was having tachycardia and tachypnoea on admission and BP was 190/130 mm of Hg. She had pallor and mild pedal oedema. On systemic examination mild inspiratory craps were present bilaterally in infra axillary regions. Musculoskeletal examination showed evidence of synovitis at both wrist joints and deformity at right elbow joint. Investigations done in both cases are summarised in Table 1.

Table 1: Investigation results for cases

Investigations	Case one	Case two
Urine protein	Absent	Absent
Haemoglobin	10.2 gm%	7.1 gm%
TC/PC	Within normal limits	Within normal limits
ESR	14 mm/hour	40 mm/hour
CRP	90 Mg/L	17.2 Mg/L
S.Creatinine	0.7 mg/dl	1.9 mg/dl
SGPT	18 IU/L	65 IU/L
RF	1:16 by latex	12.06 IU/ML by turbido-metric
ANA	+2 Homogenous	+1 Homogenous
ENA Profile	Negative	Negative
Anti CCP antibody	>200 U/ml by ELISA	48.34 U/ml by ELISA
X-rays	Chest-normal Both hands with wrist and feet AP-no erosion	Chest-normal Both hands with wrist- AP shows erosion on right 2nd MCP and X-ray right elbow shows deformed joint at right elbow
2 D echo	Mild MVP	LVH/ generalised hypokinesia/ mild MR/mild PAH/LVEF 26%
Others	-	USG abdomen-medical renal diseases

Both cases had certain similarity such as age at onset near 16 year, female gender, polyarticular onset, high titre anti CCP antibody, homogenous ANA pattern at low titre and negative ENA profile. The second case experienced erosive disease and systemic complications after few years of onset. However it is difficult to compare future course of individual patient on the bases of two cases, one can still observe that may be high titre of anti CCP antibody predicts poor outcome in these small group of patients with JIA just like in adult with RA especially related to erosive diseases.

RF positive JIA is subtype that resembles adult RF positive RA. However, the ILAR classification criteria do not capture all children with childhood onset RA due to specific exclusion criteria while the ACR/ EULAR criteria used for diagnosing adult RA do not have these exclusions, and they include the highly specific anti-CCP antibodies.[3] Surprisingly Anti CCP antibody, one of the more specific markers of RA for diagnosis and poor prognosis in the form of erosive diseases is not studied in guidelines for the same purpose in patients with JIA!

There is also lack of protocol on treating and monitoring adult patients with history suggesting of onset of arthritis before 16 year but presented after 16 year with clinical parameters just like RA, such patients with RF positive/negative polyarticular JIA can be screened for Anti CCP antibody and if found raised with high titre than can be treated to target as per guidelines of adult RA.

In JIA limited numbers of tests, such as ANA and RF are available for the classification and for predicting the clinical course.[4,5] These cases are discussed to emphasise on the need of more prospective studies on JIA patients with anti CCP antibody positivity to determine its correlation as poor prognosis predictor, which may help in intensification of treatment in these small but significant group of JIA patients.

References

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