

Top Tips for Investigations

1. Laboratory tests are used to support or exclude potential diagnoses. They can also be used to monitor progress, response to treatment, or adverse side effects of medication. In the context of red flags suggesting infection or malignancy, investigations are required and need to be interpreted within the clinical context.
2. Normal values vary with age and reference ranges are available for interpretation.
3. In a child with fever and multiple joint involvement, there is a wide differential including infections such as Rheumatic fever, Brucellosis and Tuberculosis. Ask about ingestion of goat or camel milk. Consider throat swab, ASOT titres, blood cultures and Mantoux or QuantiFERON® Gold testing.
4. A diagnosis of Juvenile Idiopathic Arthritis (JIA) is one of exclusion and blood tests and radiographs can be, and often are, normal. Before planning invasive tests, a paediatric rheumatology assessment is recommended. Arthroscopy and synovial biopsy are rarely indicated except when there is concern about infection (mycobacterial), foreign body synovitis, or malignancy.
5. If there is a concern about muscle disease (e.g., frequent falls, weakness, muscle pain, delay or regression in developmental milestones, abnormal gait, speech delay, enlarged calves), ensure an urgent CK test and Vitamin D levels. Referral is still needed if there is clinical concern and even if the CK or Vitamin D are normal.
6. Antinuclear antibody (ANA) is often found in normal, healthy children and can be present in high titre with transient illness. ANA is not diagnostic of JIA or any other disease. In the context of JIA, the presence of ANA increases the risk of (asymptomatic) chronic anterior uveitis. Ophthalmological screening is useful as part of the diagnostic assessment for JIA related uveitis and also other pathology (e.g vasculitis).
7. Rheumatoid factor (RF) is usually negative in children with JIA and is not diagnostic. In the context of JIA, RF is associated with a more severe disease course.
8. The diagnosis of a connective tissue disease requires appropriate laboratory and imaging investigations after careful clinical assessment. Referral to paediatric rheumatology is needed.
9. Imaging may be indicated but needs careful consideration. Young children may not co-operate with long procedures and may require sedation or anaesthesia. It is also important to minimise radiation exposure. Ultrasound or Magnetic Resonance Imaging (MRI) do not involve radiation, but may not always be available. With suspected inflammatory disease, an MRI request with gadolinium may be important as enhancement strongly suggests synovitis. Discussion with radiology is advised.
10. Radiographs for isolated severe or refractory joint pain (e.g., knee pain) should include the long bone above and below to improve detection of bone tumours. Often imaging the contralateral joint can also be helpful as a means of comparing the abnormal joint to one that is "normal." Radiographs to investigate hip disease should include frog-leg view radiographs, especially when a slipped capital femoral epiphyses is suspected.

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