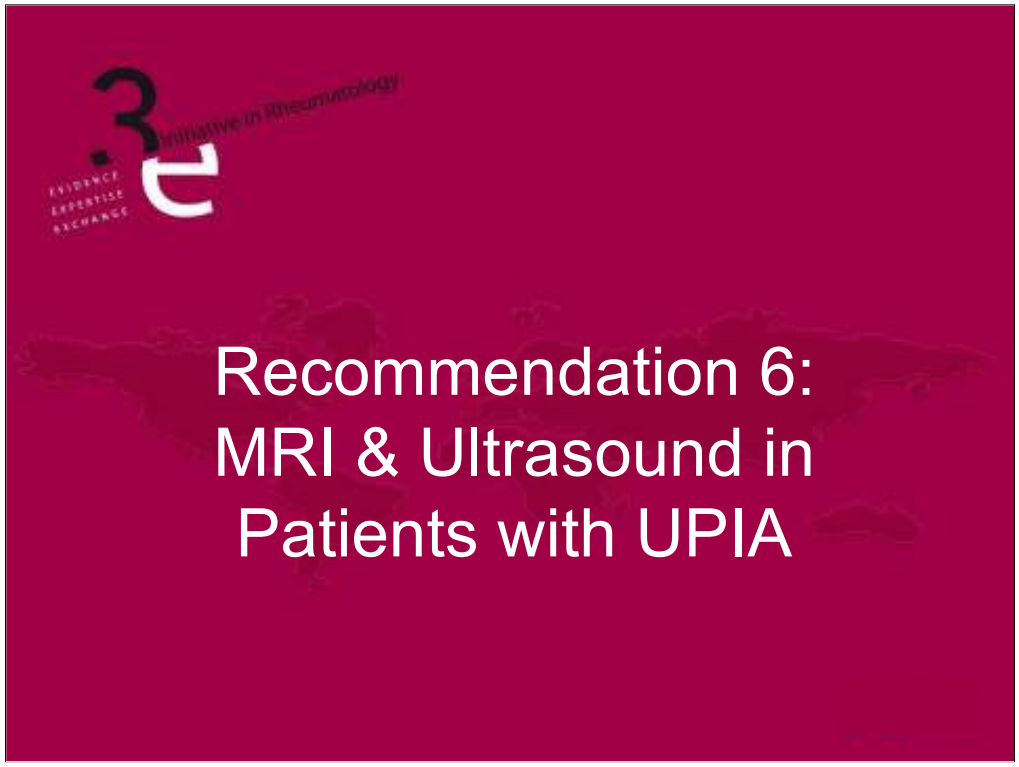
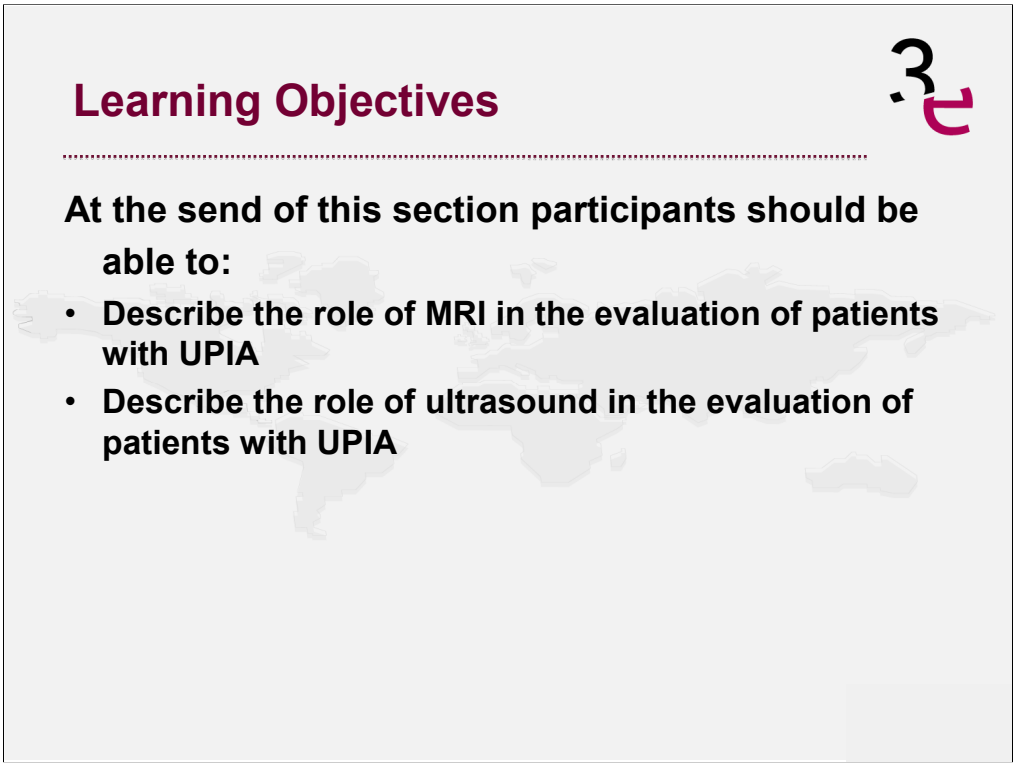


Recommendation 6

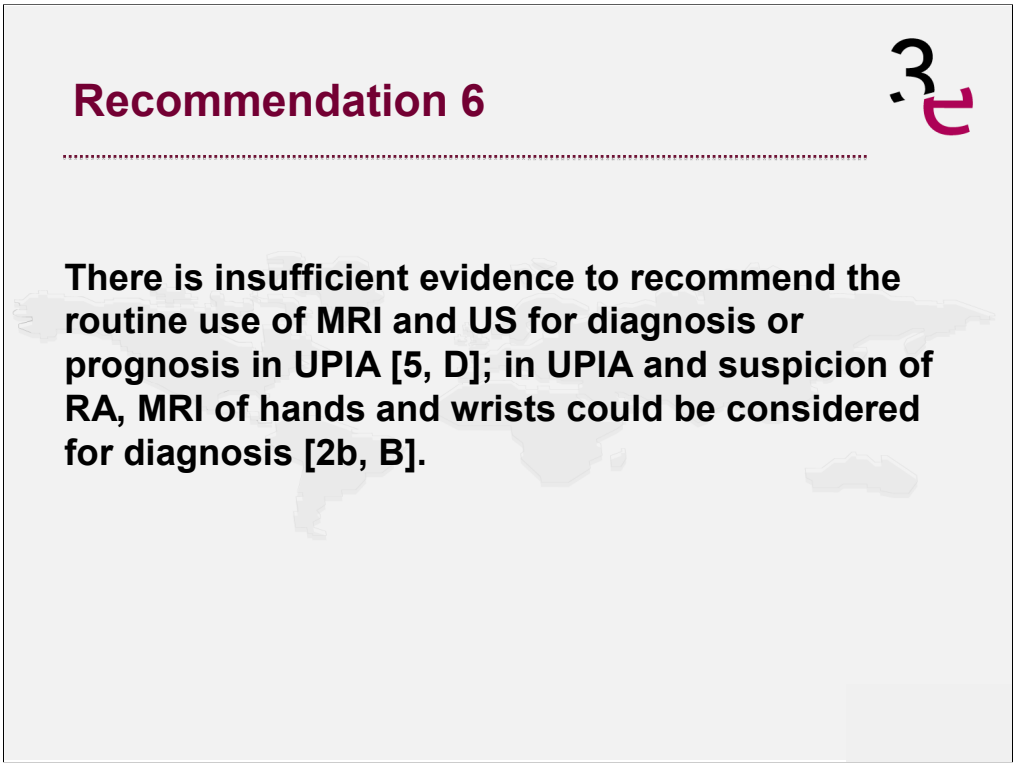


Learning Objectives

At the send of this section participants should be able to:

•Describe the role of MRI in the evaluation of patients with UPIA

•Describe the role of ultrasound in the evaluation of patients with UPIA

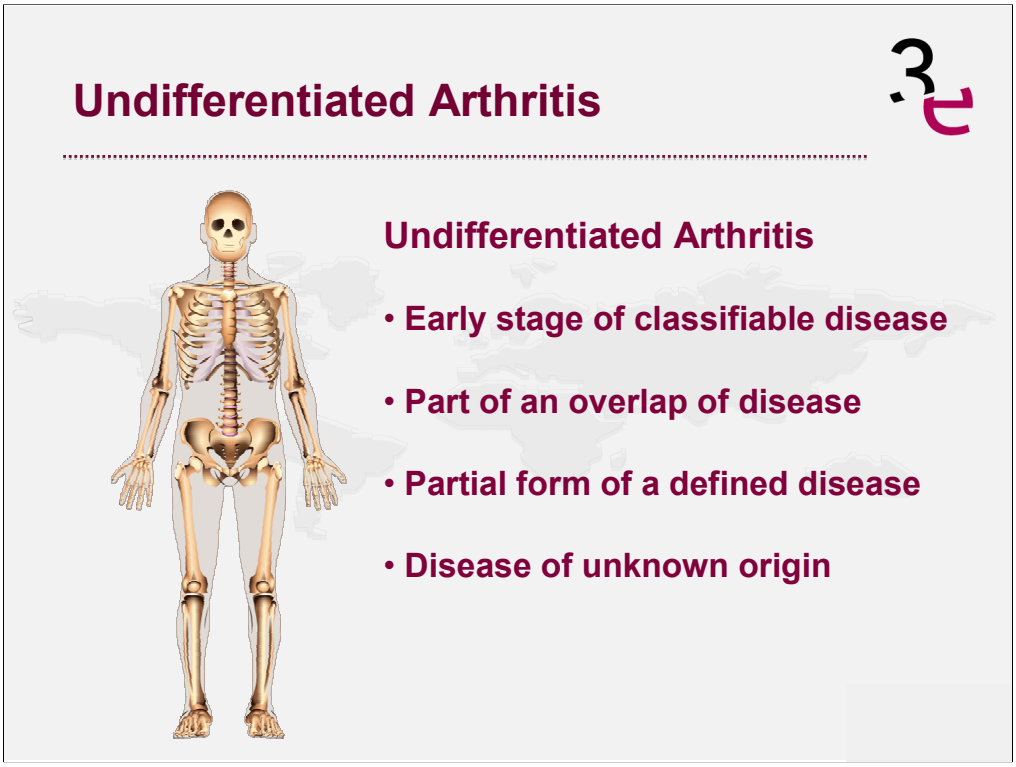


Recommendation 6

There is insufficient evidence to recommend the routine use of MRI and US for diagnosis or prognosis in UPIA [5, D]; in UPIA and suspicion of RA, MRI of hands and wrists could be considered for diagnosis [2b, B].

This recommendation had an agreement of 8.2/10.

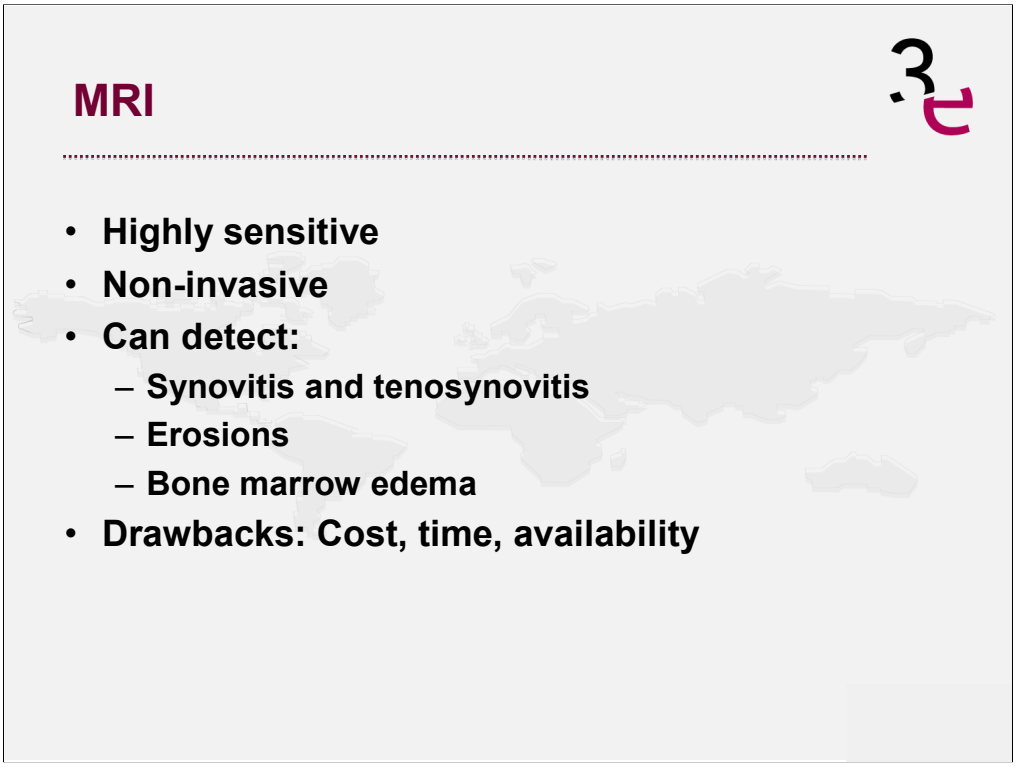
64% of rheumatologists felt that this recommendation was already implemented in their practice, and 18% felt it would change their practice.



UA envelops a heterogeneous group of recent onset arthritides that are not classifiable within established criteria sets such as those of the American College of Rheumatology (ACR) and The European League Against Rheumatism (EULAR).

UA may represent an early stage of a classified form of arthritis that will eventually be definable; an overlap of more than one disease; a partial form of a defined disease; or a disease of unknown origin. UA overall has a better prognosis than RA as it encompasses a spectrum of self-limited disorders. As compared to RA, a patient with UA usually presents with fewer affected joints, less radiographic erosions, better functional ability, and a greater likelihood of being seronegative. Patients with UA are also less likely than patients with RA to require treatment that involves the use of corticosteroids (such as Prednisone) or DMARDs and a substantial proportion of UA patients remit spontaneously.

Hitchon CA, Peschken CA, Shaikh S, El-Gabalawy HS. Early undifferentiated arthritis. *Rheum Dis Clin N Am*. 2005;31:605-626.



MRI

-Highly sensitive

-Non invasive

-Can detect: synovitis and tenosynovitis, erosions, bone marrow edema

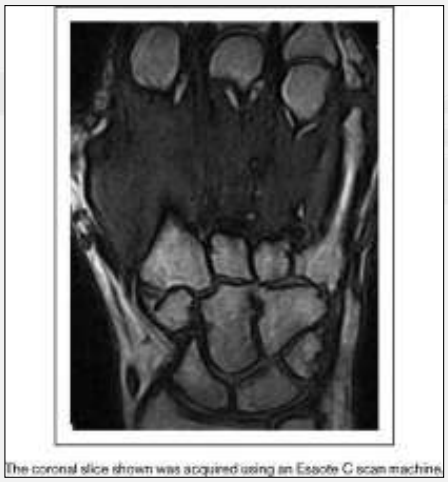
-Drawbacks: Cost, time, availability

MRI has a number of advantages in the imaging of inflammatory arthritis. It is highly sensitive and can provide a wide range of information. Drawbacks are listed above.

Freeston, Jane; Bird, Paul; Conaghan, Philip. The role of MRI in rheumatoid arthritis: research and clinical issues. Current Opinion in Rheumatology. 21(2):95-101, March 2009.

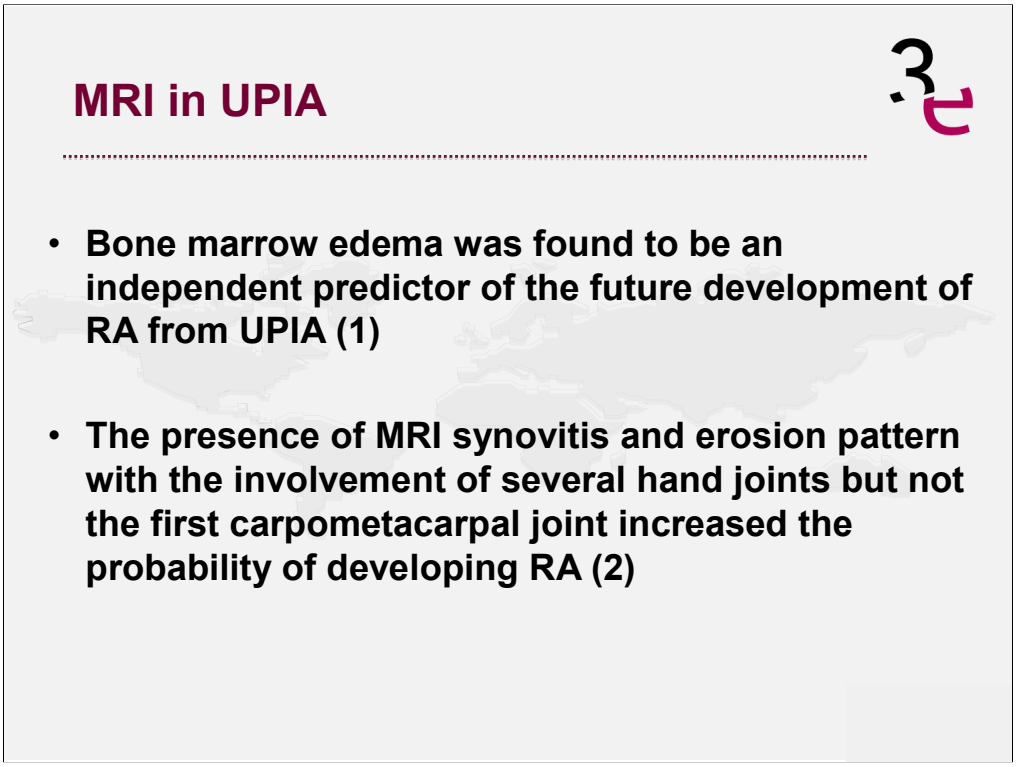
MRI in RA

An extremity MRI T1-weighted image of the carpus



Freeston, Jane; Bird, Paul; Conaghan, Philip. (2009) The role of MRI in rheumatoid arthritis: research and clinical issues. *Current Opinion in Rheumatology. 21(2):95-101* DOI: 10.1097/BOR.0b013e32832498f0

This is an image of an MRI of the wrist.



MRI in UPIA

•Bone edema was found to be an independent predictor of the future development of RA from UPIA (1)

•The presence of a distinct MRI synovitis and erosion pattern with the involvement of several hand joints but not the first carpometacarpal joint also increased the probability of developing RA (2)

1) Tamai M, Kawakami A, Uetani M, Takao S, Arima K, Fujikawa K, et al. Anti-cyclic citrullinated peptide antibody and magnetic resonance imaging-detection of bone marrow oedema are most important predictors in classification as well as prognostic evaluation of undifferentiated arthritis. Ann Rheum Dis. 2007; 66(Suppl II):338.
2) Duer A, Ostergaard M, Horslev-Petersen K, Vallo J. Magnetic resonance imaging and bone scintigraphy in the differential diagnosis of unclassified arthritis. Ann Rheum Dis. 2008 Jan; 67(1):48-51.

Ultrasound

- **More sensitive than physical exam or plain radiographs**
- **Non-invasive**
- **Dynamic, real-time imaging**
- **Can detect:**
  - **Synovitis and tenosynovitis**
  - **Erosions**
  - **NOT Bone marrow edema**
- **Drawbacks: Operator dependence, time, availability**

Ultrasound

More sensitive than physical exam or plain radiographs

Non-invasive

Dynamic, real-time imaging

Can detect:

- Synovitis and tenosynovitis
- Erosions
- NOT Bone marrow edema

Drawbacks: Operator dependence, time, availability

Ultrasound has several advantages and some disadvantages, as listed above.

Brown, A. K. Using ultrasonography to facilitate best practice in diagnosis and management of RA

Nat. Rev. Rheumatol. 2009. 5; 698-706.

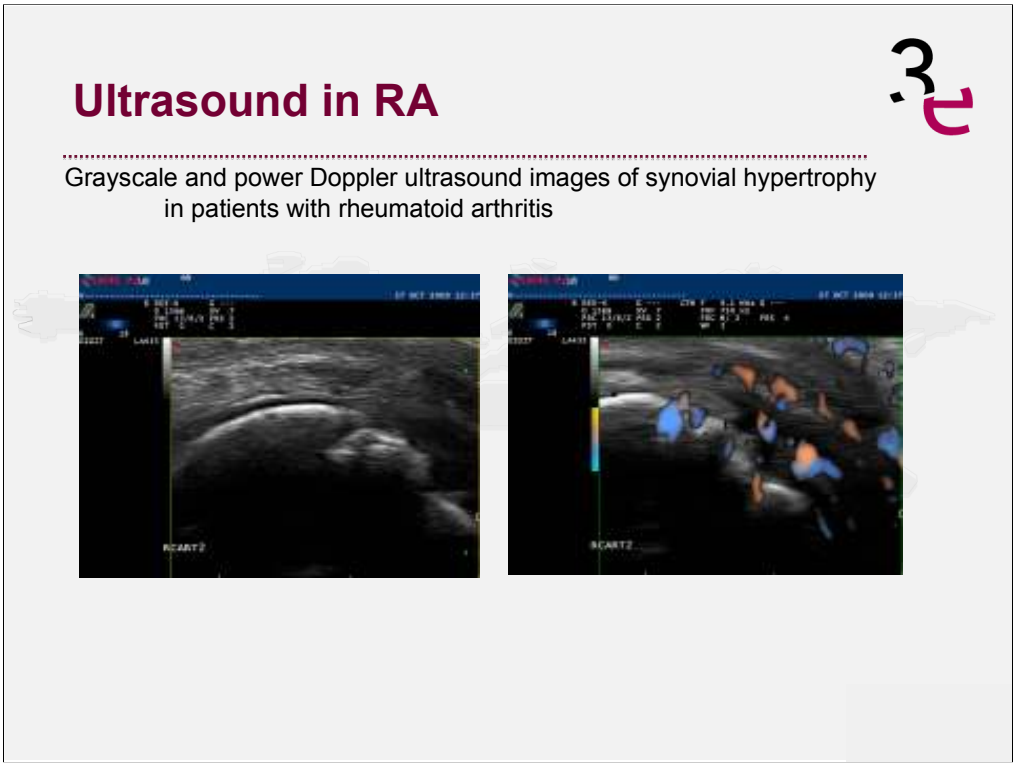
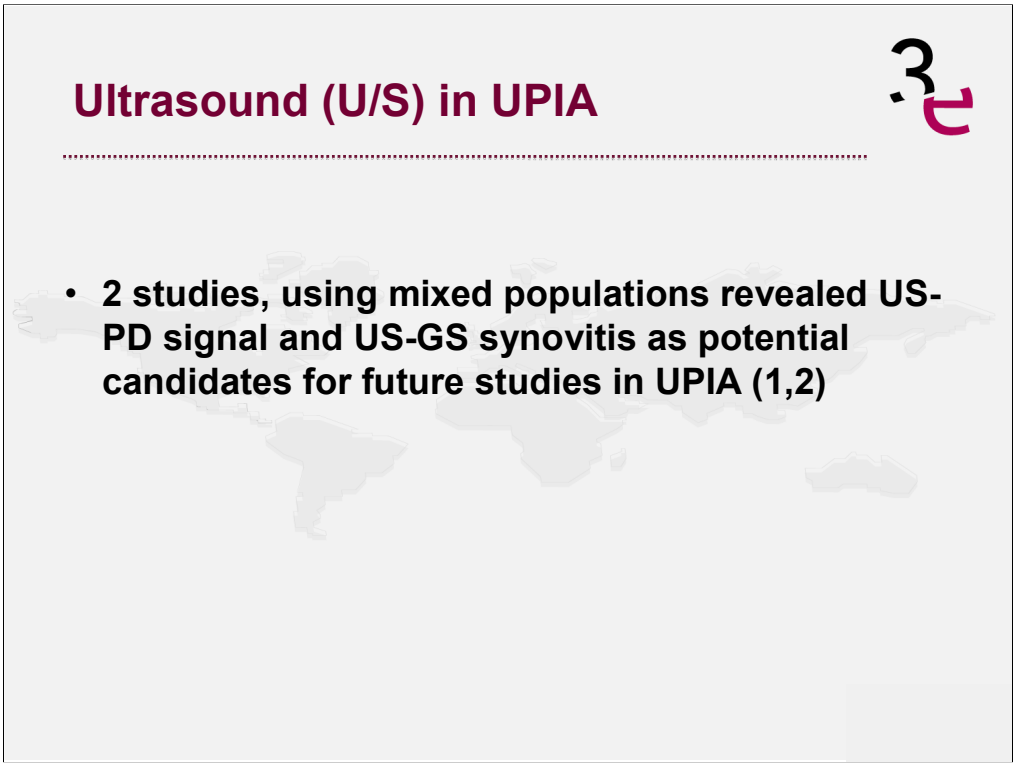


Figure 1 Grayscale and power Doppler ultrasound images of synovial hypertrophy in patients with RA



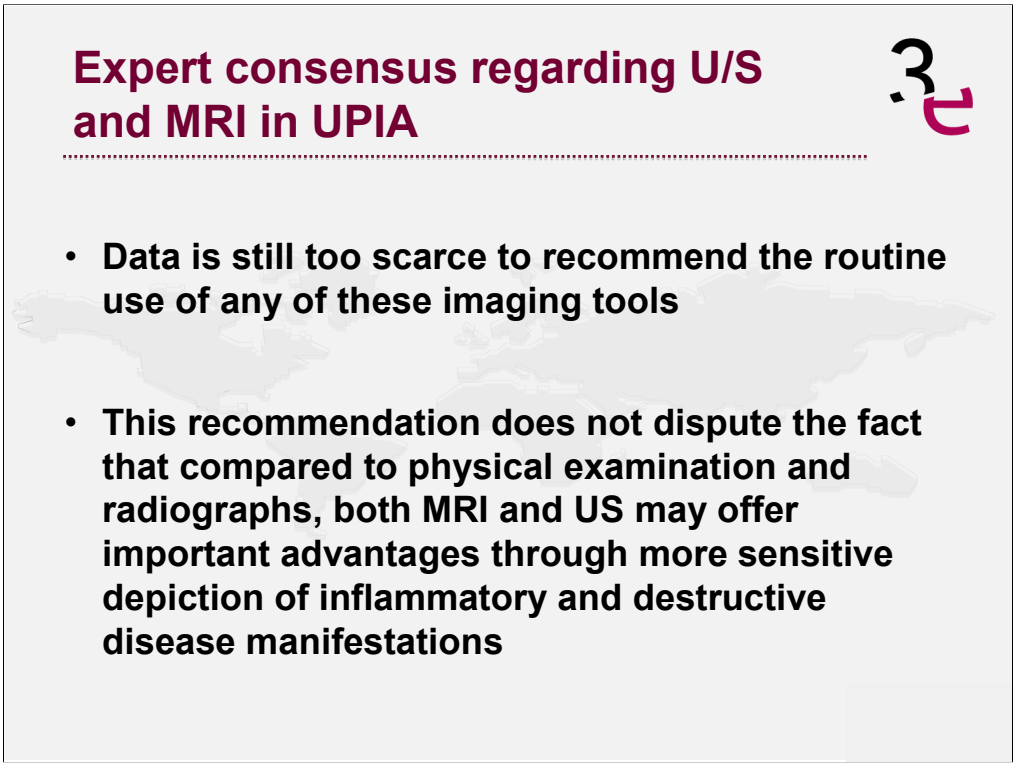
U/S in UPIA

2 studies, using mixed populations revealed US-PD signal and US-GS synovitis as potential candidates for future studies in UPIA.

There was limited evidence on the role of U/S in UPIA, however 2 did provide support for a potential role for US – grey scale, and US-power doppler.

1. Freeston J, Wakefield R, Conaghan P, Hensor E, Emery P. Ultrasound at Presentation Predicts Clinical Outcome in Very Early Inflammatory Patients Arthritis Rheum. 2007; 56(12).

2. Scire C, Montecucco C, Epis O, Eleonora B, Codullo V, Bugatti S, et al. Residual Disease Activity Assessment by Muskoloskeletal Utrasounds in Early Arthritis. Arthritis Rheum. 2008; 58(9):S408.

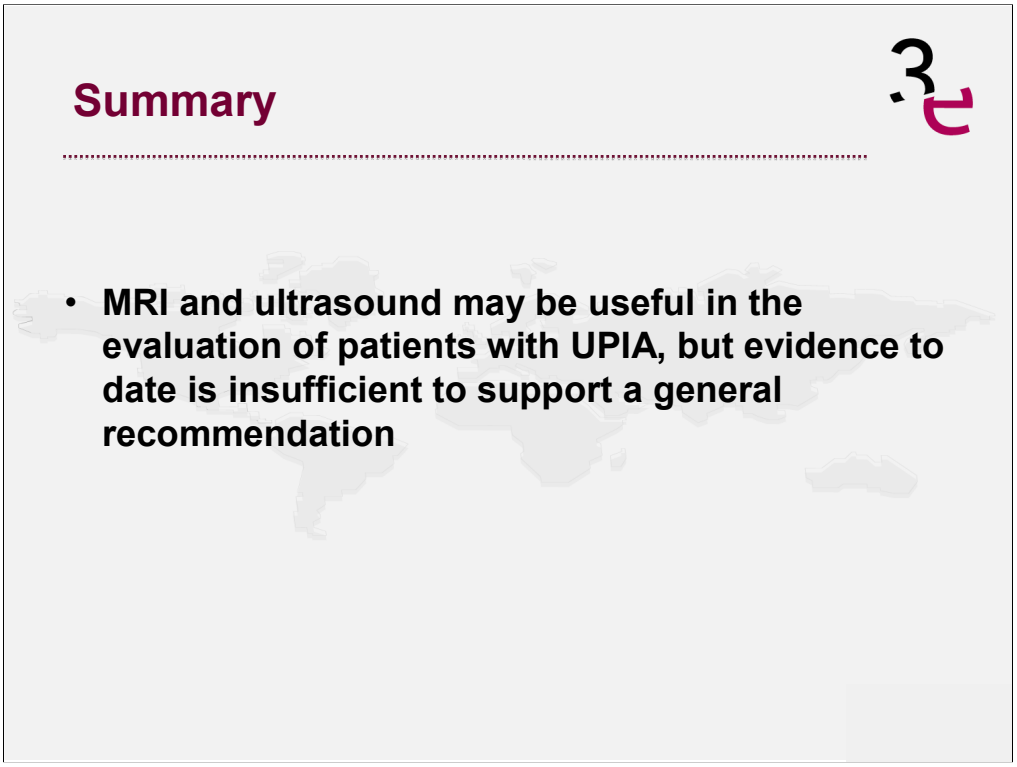


Expert consensus regarding U/S and MRI in UPIA

•Data is still too scarce to recommend the routine use of any of these imaging tools

•This recommendation does not dispute the fact that compared to physical examination and radiographs, both MRI and US may offer important advantages through more sensitive depiction of inflammatory and destructive disease manifestations

The current recommendation pertains only to the diagnostic and prognostic value of these imaging tools in UPIA.



Summary

MRI and ultrasound may be useful in the evaluation of patients with UPIA, but evidence to date is insufficient to support a general recommendation.

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