Dual-Energy Computed Tomography for the Evaluation of Gout and Calcium Crystal Deposits

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Objectives

- To describe the use of dual-energy CT (DECT) for the evaluation of gout and calcium crystal deposits
- To evaluate the diagnostic value of DECT in the evaluation of atypical inflammatory arthropathies
- To determine the accuracy of DECT in the diagnosis of gout

Background

- Determination of acute and chronic urate crystals within soft tissues is a key step in the diagnosis of gout
- At times, clinicians base the diagnosis on findings on imaging modalities alone
- Demonstration of uric acid crystals within synovial fluid is a gold standard for the diagnosis of gout
- At times, clinicians base the diagnosis on findings on imaging modalities alone

Objective

- To describe the use of dual-energy (DE) CT for the evaluation of gout and calcium crystal deposits

Protocol

- 55 DECT scans were performed on 54 patients
- MSK subspecialist radiologists interpreted each CT

Results

- 26/54 subjects had DECT positive for uric acid
- Compared with final clinical diagnosis
- No False Positives
- No False Negatives

Conclusions

- DECT scanning provides a noninvasive means of:
  - Differentiating gout from other inflammatory arthropathies
  - Differentiating calcification from urate crystal deposition
  - Identifying patients with atypical arthropathies
- DECT is superior to other imaging modalities in terms of sensitivity and specificity
- DECT is a valuable tool for diagnostic imaging in clinical settings
- DECT is more sensitive than other imaging modalities in detecting urate crystal deposits
- DECT is more sensitive than other imaging modalities in detecting urate crystal deposits

References