Prevalence of Adrenal Incidentalomas and Assessment of Practitioner Follow-Up per Guidelines

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Introduction

- Due to widespread increases in medical imaging, medical practitioners have seen a marked increase in the detection of adrenal incidentalomas (Figure 1)
- The main concerns for adrenal incidentalomas are the potential for malignancy and hypersecretion of hormones
- The American Association of Clinical Endocrinologists (AACE) has published guidelines1 for clinicians that detail appropriate follow-up and management of adrenal incidentalomas
- Follow-up guidelines include repeated imaging studies at 6, 12, and 24 months, and annual hormone evaluation for 5 years

Methods: Inclusion Criteria

- Patients between the ages of 18 and 89 years old
- CT scans performed for non-endocrine related conditions
- CT scans revealed adrenal nodules found incidentally

Exclusion Criteria for Initial Identification of Adrenal Nodules

- Imaging study performed for adenocortical symptoms
- Patients with predisposing endocrine or tumor syndrome
- CT scans performed outside of imaging timeline
- Adrenal nodule initially diagnosed by imaging other than CT
- No adrenal nodule present on CT scan

Results: Prevalence and Follow-Up

Prevalence of Adrenal Incidentalomas in Study Population

- 305 patients had adrenal incidentalomas
- 86,771 patients received CT scans

Figure 3. Out of 86,771 patients who received CT scans in the UCH Health System from 09/2011 – 12/2016, 305 patients had diagnosis of a true incidental adrenal nodule. The prevalence of incidentalomas within the study population was 0.4%.

Imaging and Hormonal Evaluation Follow-Up

- 220 patients received imaging follow-up
- 118 patients received hormonal follow-up

Figure 4. Out of 305 patients with true adrenal incidentalomas, 28% received no imaging follow-up and 61% received no hormone follow-up, despite AACE guideline recommendations for imaging studies over 2 years and hormonal evaluation over 5 years.

Results: Non-Followed Nodules

- Nodule Size of Non-Followed Adrenal Incidentalomas
- Hounsfield Units of Non-Followed Adrenal Incidentalomas

Figure 5. Analysis of specific nodule characteristics for adrenal incidentalomas that received no follow-up imaging studies. While the 2009 AACE guidelines recommend imaging follow-up for all nodules, regardless of size or Hounsfield Units, adrenal incidentalomas are considered more worrisome if size > 4cm and/or HU > 10.

Conclusions & Future Directions

- Prevalence of adrenal nodules within the study population was 0.4%.
- This value, which is lower than expected and reported in the literature, may be due to strict inclusion criteria and lack of accurate EMR rotation of adrenal nodules, which were utilized to pull patient records.
- Practitioner follow-up did not meet 2009 AACE guidelines.
- This means that potentially harmful or hormonally active or cancerous nodules may have been missed by practitioners.

Future Directions

- Further studies should evaluate all CT scans regardless of presence of EMR diagnosis of adrenal nodule to determine true prevalence
- More education to practitioners about adrenal incidentaloma guidelines should be provided

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References


Figure 1. Incidentally discovered nodule located in the left adrenal gland