ROLE FOR \(^{131}I\)-6\(^\beta\)-IODOMETHYL-NORCHOLESTEROL SCINTIGRAPHY IN SUBCLINICAL CUSHING SYNDROME WITH BILATERAL ADRENAL LESIONS

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INTRODUCTION

Subclinical Cushing Syndrome (SCS) is the most frequent endocrine dysfunction found in adrenal incidentalomas. Although adrenalectomy constitutes a therapeutic option for selected cases, the presence of bilateral tumours can complicate the surgical decision.

OBJECTIVES

Evaluate the utility of \(^{131}I\)-6\(^\beta\)-iodomethyl-19-norcholesterol scintigraphy in SCS with bilateral adrenal tumours.

METHODS

- Retrospective analysis of all patients with SCS and bilateral adrenal lesions submitted to \(^{131}I\)-6\(^\beta\)-iodomethyl-19-norcholesterol scintigraphy in our Nuclear Medicine Department.

Following suppression with dexamethasone, planar thoracoabdominal scintigraphy and single photon emission computed tomography (SPECT/CT) images were obtained at 3\(^{rd}\), 5\(^{th}\) and 7\(^{th}\) days after intravenous administration of 1\(\mu\)Ci of \(^{131}I\)-6\(^\beta\)-iodomethyl-19-norcholesterol.

RESULTS

1. 67 years
   - Adrenal lesions identified in abdominal-CT (31/10/2008)
   - Right adrenal with 2.4cm of Ø and left adrenal with 0.7cm of Ø
   - \(^{131}I\)-Norcholesterol scintigraphy + SPECT-CT (26/09/2011)
   - "Pronounced radiopharmaceutical uptake at right adrenal with virtually no uptake of contralateral adrenal."

   Right adrenalectomy was performed at 23/04/2012
   - Histopathology: "Cortical adenoma of right adrenal gland"
   - Evolution: Reduction of anti-hypertensive drugs

2. 66 years
   - Adrenal lesions identified in abdominal-CT (11/07/2005)
   - Right adrenal with 2.5cm of Ø and left adrenal with 1.5cm of Ø
   - \(^{131}I\)-Norcholesterol scintigraphy + SPECT-CT (28/08/2011)
   - "Slight radiopharmaceutical uptake at both adrenal glands. Doubtful appreciation"

   Medical treatment
   - Spironolactone 50mg 2id
   - Evolution: Clinical surveillance

3. 49 years
   - Adrenal lesions identified in abdominal-CT (11/06/2012)
   - Right adrenal with 2.1cm of Ø and left adrenal with 1.6cm of Ø
   - \(^{131}I\)-Norcholesterol scintigraphy + SPECT-CT (17/03/2014)
   - "Pronounced radiopharmaceutical uptake at right adrenal with virtually no uptake of contralateral adrenal."

4. 46 years
   - Adrenal lesions identified in abdominal-CT (06/05/2005)
   - Right adrenal with 3.0cm of Ø and left adrenal with 2.5cm of Ø
   - \(^{131}I\)-Norcholesterol scintigraphy + SPECT-CT (10/11/2010)
   - "Slight radiopharmaceutical uptake at both adrenal glands, more pronounced at right side. Doubtful appreciation"

   1st \(^{131}I\)-Norcholesterol scintigraphy + SPECT-CT (18/02/2014)
   - "Pronounced radiopharmaceutical uptake at right adrenal with virtually no uptake of contralateral adrenal."

   Right adrenalectomy was performed at 14/10/2014
   - Histopathology: "Cortical adenoma of right adrenal gland"

CONCLUSION

The adrenal \(^{131}I\)-6\(^\beta\)-iodomethyl-19-norcholesterol scintigraphy with SPECT-CT provides a more precise picture of functional structural lesions, crossing the information obtained by CT and hormonal assays. In these patients enabled a more targeted surgical approach.