Patient satisfaction of Volume Cardiac CT versus Invasive Coronary Angiography in suspected coronary artery disease.

Poster No.: C-0292
Congress: ECR 2011
Type: Scientific Exhibit
Authors: S. Hussain, J. Rayner; Birmingham/UK
Keywords: Management, CT, Diagnostic procedure
DOI: 10.1594/ecr2011/C-0292

Any information contained in this pdf file is automatically generated from digital material submitted to EPOS by third parties in the form of scientific presentations. References to any names, marks, products, or services of third parties or hypertext links to third-party sites or information are provided solely as a convenience to you and do not in any way constitute or imply ECR's endorsement, sponsorship or recommendation of the third party, information, product or service. ECR is not responsible for the content of these pages and does not make any representations regarding the content or accuracy of material in this file.

As per copyright regulations, any unauthorised use of the material or parts thereof as well as commercial reproduction or multiple distribution by any traditional or electronically based reproduction/publication method is strictly prohibited.

You agree to defend, indemnify, and hold ECR harmless from and against any and all claims, damages, costs, and expenses, including attorneys' fees, arising from or related to your use of these pages.

Please note: Links to movies, ppt slideshows and any other multimedia files are not available in the pdf version of presentations.

www.myESR.org
Purpose

CT angiography of the coronary arteries using multislice CT technology has developed into a robust non-invasive imaging technique. There is a significant amount of evidence which demonstrates that Cardiac CT imaging using a non-invasive technique is as accurate as an invasive angiographic investigation \{1-5\}. Non-invasive techniques have several advantages over Invasive angiographic techniques:

- CT does not carry the small risk of myocardial infarction and stroke which invasive angiographic imaging techniques do.
- No risk of less severe complications such as post-procedural haematoma/pain at access site.
- A cardiac CT investigation requires the patient to be in the department for less than 30 mins while an invasive angiogram requires ~2-3 hours.

Cardiac CT has the added advantage over invasive angiography that it can identify other causes of chest pain including pulmonary embolic disease, aortic pathology and lung parenchymal disease. Volume Cardiac CT (VCCT) has further advantages when compared to multislice CT in that:

1) There is a reduced dose since the maximum detector width of a 320 slice scanner is 16 cm and the heart can therefore be covered in a single rotation. This can also result in improved temporal resolution

2) Reduction in the volume of contrast which is used since the scan is acquired in a single heart beat and therefore typically only 70 mls of contrast is required.

While extensive research with regards to accuracy of non-invasive techniques, has been carried out. Patient satisfaction of imaging modalities in coronary artery disease diagnosis has received less attention. The purpose of this study was to determine patient’s preference of choice of investigation - this is the first published data to our knowledge of patient comparison of VCCT to invasive angiography.
Methods and Materials

Patient selection

All patients who underwent a Volume Cardiac CT at our institution - Heartlands Hospital, Birmingham, who had also undergone an invasive coronary angiogram, were eligible for entry into the study. All VCCT examination were carried out on a Toshiba Aquilllon One CT scanner with ECG gating; image optimisation using IV B blocker and sublingual GTN and 70 mls of Optiray 350 contrast.

Questionnaire design

A series of questions were conceived using Likert-like scale responses to address specific themes that impact upon satisfaction: communication of information regarding the tests; expedience of the tests; feelings and general experience of the tests; ultimate preference between tests.

Data collection

- A list of eligible patients was collated from baseline data retrieved from the local picture archiving computer system (PACS).
- Patients were sent a copy of the questionnaire with a covering letter, pencil and stamped, self addressed envelope to their home address.
- Participant anonymity was impressed upon all participants.
- The new service meant cardiac CT had taken place within the last 6 months for all participants.

Data Analysis

Absolute numbers and proportions were calculated for each category of response and tabulated as raw data with representation in graphical form as desired using Microsoft Excel 2007.
Results

Participant demographics: A total of 26 patients with eligibility participated in the survey. The age ranged from (36 to 78) and 56% were male. All participants responded and data entry was complete in almost all responders. Omission of response only accounts for reduced totals in specific questions.

Theme 1: Communication regarding the tests (Charts 1+2)

Patients were first asked to rate the communication of information they received for the Cardiac CT test. Chart 1 illustrates the majority of patients were satisfied with the level of information given before, on the day and after the test (22/25; 23/25; 24/25) respectively.

Patients were then asked about communication regarding their Angio. Over half of responders (13/24) were not given the result of their Angio at the time of the test. None of the patients (11/24) that did receive an immediate result from the Angio test were unhappy with the timing of this information. The proportion of these responses is demonstrated graphically in Chart 2.

Theme 2: Expediency of the tests

All participants responded and under half (10/26) reported more waiting on the day with the Cardiac CT compared to the Angio test.

Theme 3: Feelings and experience of the tests (Chart 3)

Similar numbers of patients (10/26; 9/26) felt uneasy in anticipation of the Angio and the Cardiac CT scan. Almost all patients reported more tolerance of the needles involved in the Cardiac CT scan compared to the Angio (23/25) and more patients (9/26; 4/24) felt unwell immediately after the Angio compared to after the Cardiac CT scan. The majority of patients felt Cardiac CT scan was comparably a better experience than Angio (24/26).

Information of this theme is demonstrated graphically in Chart 3.

Theme 4: Ultimate preference of the tests (Table 1)
Almost total preference (25/26) was observed for the Cardiac CT and most would prefer CT over Angio if future similar investigations were required (See table 1).

Table 1: Patient preference for examination of coronary vessels

<table>
<thead>
<tr>
<th></th>
<th>Which test did you prefer?</th>
<th>Which test would you prefer in the future?</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT Cardiac Scan</td>
<td>25</td>
<td>24</td>
</tr>
<tr>
<td>Conventional Angiogram</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>26</td>
<td>25*</td>
</tr>
</tbody>
</table>

*1 responder voted for both tests and his response was therefore discarded
Conclusion

- This study is the first published data to examine patient views of Volume Cardiac CT using 320 slice MSCT technology in direct comparison to conventional angiography (Angio).
- Corroborating with data of previous generations of non-invasive cardiac imaging, this study provides insight into patient views of the new Cardiac Volume CT service in Birmingham, UK.
- It confirms that patients are satisfied with the new VCCT service, find it more comfortable and ultimately preferable to Invasive angiography.
- VCCT is now considered an option in frontline imaging of coronary artery disease.
References


