Does Rubidium-82 PET Have Superior Accuracy to SPECT Perfusion Imaging for the Diagnosis of Obstructive Coronary Disease?
A Systematic Review and Meta-Analysis

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Objectives
The purpose of this study was to evaluate the accuracy of rubidium (Rb)-82 positron emission tomography (PET) for the diagnosis of obstructive coronary artery disease (CAD) in comparison to single-photon emission tomography (SPECT).

Background
Myocardial perfusion imaging is widely used in the assessment of patients with known or suspected CAD. PET using Rb-82 has potential advantages over SPECT that may make it more accurate and that reduce radiation exposure compared with SPECT but has increased costs. Comparisons of these technologies are highly relevant for policy makers and practice guidelines. However, studies directly comparing Rb-82 PET with contemporary SPECT have been limited.

Method
The authors therefore undertook a systematic review of studies where either Rb-82 PET or technetium-99m SPECT with both attenuation correction and electrocardiography-gating were used as a diagnostic test for obstructive CAD with invasive coronary angiogram as a reference standard. These technologies were then compared.

Results
Fifteen PET and 8 SPECT studies (1,344 and 1,755 patients, respectively) met inclusion criteria and pooled accuracy using weighted averages according to the size of the patient population was determined for PET and SPECT with sensitivities of 90% (confidence interval [CI]: 0.88 to 0.92) and 85% (CI: 0.82 to 0.87) and specificities of 88% (CI: 0.85 to 0.91) and 85% (CI: 0.82 to 0.87), respectively. Summary receiver-operating characteristic curves were computed: area under the curve was 0.95 and 0.90 for PET and SPECT, respectively (p < 0.0001). There was heterogeneity among study populations and some studies were limited by referral bias.

Conclusions
Rb-82 PET is accurate for the detection of obstructive CAD and, despite advances in SPECT technology, remains superior. More widespread use of Rb-82 PET may be beneficial to improve CAD detection. (J Am Coll Cardiol 2012;60:1828–37) © 2012 by the American College of Cardiology Foundation

Positron emission tomography (PET) is a well-established modality for the diagnosis and risk-stratification of patients being assessed for coronary artery disease (CAD). However, its availability remains limited due to costs relative to other noninvasive imaging modalities. Compared with other nuclear methods for perfusion imaging, PET has several advantages, namely, accurate reliable attenuation correction (AC), increased count sensitivity, and lower radiation dose. The American College of Cardiology/American Heart Association/American Society of Nuclear Cardiology guidelines from 2003 give a Class I recommendation for the use of PET myocardial perfusion imaging (MPI) for the diagnosis

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of patients with an intermediate likelihood of CAD and/or risk stratification of patients with an intermediate to high likelihood of CAD in the setting of a prior equivocal SPECT scan (level of evidence: B) and a Class IIA recommendation for its use as the initial test in patients who cannot exercise or who have baseline left bundle branch block or electronic pacing (level of evidence: B) (1). Subsequently, American Society of Nuclear Cardiology guidelines have not reconsidered the class of recommendation for PET MPI. Studies that compare PET with other modalities, particularly single-photon emission computed tomography (SPECT), are limited and do not incorporate recent advances in SPECT technology such as electrocardiography (ECG)-gating and AC using either computed tomography (CT) or transmission sources.

We therefore performed this systematic review with the aim of assessing the diagnostic accuracy of rubidium (Rb)-82 PET for the assessment of patients with known or suspected obstructive CAD in comparison with the reference standard invasive coronary angiography (ICA). We also conducted a comparison with contemporary SPECT technology utilizing ECG-gating and AC methods.

**Methods**

We previously performed a comprehensive systematic review of PET perfusion imaging for diagnosis and prognosis of patients with known or suspected obstructive CAD as part of a review of multiple advanced noninvasive modalities. This was performed on behalf of the Canadian Cardiovascular Society (2) and included studies on Rb-82 PET published up to 2006. We also incorporated a systematic review of cardiac SPECT performed by the Ontario Ministry for Health that included studies published up to 2009 (3). We then performed a literature search across Ovid MEDLINE, MEDLINE In-Process and Other Non-indexed Citations, Ovid HealthSTAR, Embase, and the Cochrane Library using updated versions of the search strategies utilized in the 2 previous reviews that was limited to articles published after January 2005 for PET and after January 2008 for SPECT (Online Appendix). The last search date was March 14, 2012.

The online contents of 6 highly relevant journals, *Journal of the American College of Cardiology* (JACC), JACC: Cardiovascular Imaging, Circulation, Circulation Cardiovascular Imaging, *Journal of Nuclear Medicine*, and *Journal of Nuclear Cardiology*, published in February and March 2012, were also reviewed for relevant articles published online only. Reference lists from several highly relevant articles were also examined for relevant studies not obtained from the electronic search.

Two reviewers (B.M. and T.D.) assessed abstracts independently for adherence to inclusion criteria. Full-text articles were then obtained and examined for quality. If there was disagreement regarding inclusion, a third-party evaluation was to be performed to reach a consensus, although this situation did not arise.

Inclusion criteria were prospective studies, observational studies, retrospective studies, and case series published in peer-reviewed journals involving humans; using either Rb-82 PET, or technetium (Tc)-99m SPECT with both ECG-gating and AC with either CT or transmission sources as an imaging modality where ICA was used as a reference standard for diagnosis of obstructive CAD.

Only studies where data was available to calculate true positives, true negatives, false positives, and false negatives and where accuracy data was reported on a per-patient basis (as opposed to by segment) were included.

Exclusion criteria were abstracts and trials involving patients with nonischemic heart disease.

**Subgroup analyses.** Both Rb-82 PET and Tc-99m studies were compared according to the ICA reference (>50% vs. >70% stenosis) as well as the type of AC used (CT or transmission sources). Studies that excluded patients with known CAD were also examined separately.

**Statistical analysis.** Absolute numbers for true positives, false positives, false negatives, and true negatives were extracted from the included papers. Ten studies included patients that had a <5% statistical risk of CAD in their results (Rb-82 PET [4–9], n = 174; SPECT [10–14], n = 510) and these were included in our analysis as equivalent to having a negative ICA.

Using extracted values, pooled accuracy data was obtained using weighted averages according the size of the patient population. Pooled estimates of likelihood ratio (LR) and diagnostic odds ratio (DOR) were calculated using the DerSimonian-Laird method based on the random effects model. All accuracy estimates were reported by patient, not by artery segment, with 95% confidence intervals (CIs). Studies reporting obstructive CAD by location or multivessel disease were simplified to any CAD stenosis.

Heterogeneity between studies was assessed on Forest Plots using the Cochran Q test and the Inconsistency Index (I²). I² describes the percentage variance due to heterogeneity rather than chance across the included studies with 0%, 25%, 50%, and 75% indicating no, low, moderate, and high heterogeneity, respectively. Summary receiver-operating characteristic (SROC) curves were also computed with area under the curve (AUC) reported as a measure of diagnostic accuracy. The shape of the curve was on the basis
of changes in DOR using Moses’s constant-of-linear model. The previous analyses were performed using Meta-DiSc version 1.4 (Clinical Biostatistics Unit, Ramón y Cajal Hospital, Madrid, Spain).

Between-study comparisons were made by combining all available Rb-82 PET and SPECT studies with ICA as a reference. AUC values were compared using a 2-tailed t test with a p value <0.05 determining statistical significance.

Quality of evidence. The quality of the included studies was assessed using the QUADAS questionnaire, a systematically developed assessment tool for use in systematic reviews of diagnostic studies (15), which consists of 14 questions. This was performed using Cochrane’s Review Manager software (version 5.1.6, Cochrane Collaboration, Copenhagen, Denmark), which reports 11 of the questions, to which the answer is either “yes,” “no,” or “unclear.” These questions address bias, variability, and the quality of study reporting.

Results

Literature search results. For Rb-82 PET a total of 1,570 citations were obtained from the electronic search of articles published from January 1, 2006, to January 20, 2012. After examination of the abstracts, 21 full-text articles were obtained, of which 7 (5–9,16,17) met inclusion criteria. Thirteen articles were omitted primarily because ICA was not used as a reference. Two studies where both Rb-82 and ammonia were used were not included as the results for the Rb-82 patients alone could not be determined from the text (18,19).

From the 2006 review a total of 6 studies were included (4,20–24) that utilized Rb-82 PET. A 1992 study by Marwick et al. examining the diagnostic accuracy of Rb-82 PET in patients with previous CABG (25) that was not included in the 2006 review was found in the review of reference lists and was also included for analysis. Review of the online journal contents yielded 1 study for inclusion

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**Figure 1** Flow Diagram Showing the Results of the Systematic Review

Results for both Rb-82 positron emission tomography (PET) (left) and Tc-99m single-photon emission computed tomography (SPECT) (right) showing exclusion processes and final number of studies included. ¶Refers to Beanlands et al. (2); §refers to Medical Advisory Secretariat (3). AC = attenuation correction; ECG = electrocardiography; MPI = myocardial perfusion imaging.
(26). This gave a total number of 15 studies with 1,394 patients analyzed (Fig. 1).

For SPECT, 537 citations were obtained from the electronic search of articles published from January 1, 2008, to March 14, 2012. From these 10 full-text articles were obtained, of which 3 met inclusion criteria (10,13,14). From the previous systematic review we extracted citations for 12 full-text articles that were examined, of which 4 (12,27–29) were included. Examination of reference lists yielded 1 further study for inclusion (11) (Fig. 1).

**Trial characteristics.** All trials assessing Rb-82 were published between January 1990 and November 2011 and those for SPECT were published between May 2000 and July 2011 and all were either prospective or retrospective observational studies. There was heterogeneity between studies regarding the prevalence of obstructive CAD as well as the diagnostic criteria for a positive ICA (see Table 1). The majority of patients were male and the mean age overall was 61.75 (95% CI: 58.95 to 64.38) for Rb-82 PET and 61.1 (95% CI: 59.1 to 63.2) for Tc-99m SPECT. For SPECT, the majority of studies utilized both exercise and pharmacological stress, so both were included in the analysis.

**Diagnostic accuracy of Rb-82 PET.** The overall pooled sensitivity of Rb-82 PET for the detection of obstructive CAD was 90% (95% CI: 0.88 to 0.92), with specificity of 88% (95% CI: 0.85 to 0.91) (Fig. 2). The pooled positive LR for diagnosis of significant CAD was 5.57 (95% CI: 4.02 to 7.75) with a pooled DOR of 56.73 (95% CI: 37.99 to 84.71). The SROC curve analysis showed an AUC of 0.95 (Fig. 3).

Referral bias for the use of ICA in the majority of studies may have had an adverse impact on overall specificity and so the concept of a normalcy rate in patients statistically at low (<5%) risk for CAD was also explored on the basis of Bayesian analysis of baseline characteristics. In 5 studies, Rb-82 PET was found to correspond well with expected results (130 patients) with a pooled normalcy rate of 96% (95% CI: 0.91 to 0.99) (7–9,30). One other study included low-likeness CAD risk patients (<5%) but did not report a normalcy rate (5).

Excluding low LR patients \((n = 1,170)\) did not have a significant effect on overall accuracy (AUC: 0.94, \(p = 0.73\)) with a small decrease in specificity to 86% (95% CI: 0.82 to 0.90). Comparison of studies where >50% stenosis on ICA was used as a reference with >70% showed no significant difference in diagnostic accuracy (AUC: 0.948 vs. 0.954, respectively; \(p = 0.78\)) (Table 2). Three studies reported values for both 50% and 70% (7,9,26) and both data sets were analyzed. Comparison of CT and transmission AC did not show any significant difference in accuracy \((p = 0.19)\) (Table 2).

Including only studies with patients with no documented CAD \((n = 297)\) did not increase overall accuracy significantly compared to studies including patients with previous myocardial infarction or revascularization but specificity did improve from 87% to 91%.

The \(I^2\) values for sensitivity and DOR were 14.8% and 0% respectively, indicating little or no heterogeneity amongst studies for these parameters. However, the values for specificity (68.4%) and positive LR (41.7%) indicated a more significant degree of variance.

**Diagnostic accuracy of SPECT.** Sensitivity and specificity for Tc-99m SPECT with ECG-gating and AC were 85% (95% CI: 0.82 to 0.87) and 85% (95% CI: 0.82 to 0.87), respectively, with an AUC of 0.90. Subgroup analysis showed that accuracy for a 50% stenosis on ICA was superior to 70% (AUC: 0.91 and 0.87, respectively; \(p < 0.0001\)) (Table 3). The \(I^2\) values for sensitivity, DOR, specificity, and positive LR were 46.5%, 48.5%, 54.2%, and 48.2%, respectively, which indicates a moderate degree of variance for each parameter.

Analysis of studies where patients with known CAD or previous myocardial infarction were excluded \((n = 1,320)\) did not alter diagnostic accuracy significantly. Four studies (10,12–14) reported a normalcy rate \((n = 461)\) with a pooled normalcy rate of 97% (95% CI: 0.95 to 0.98), which was similar to Rb-82 PET.

### Table 1 Characteristics of Rb-82 PET and Tc-99m SPECT Studies Included in Analysis

<table>
<thead>
<tr>
<th>Study Characteristics</th>
<th>Rb-82 PET</th>
<th>Tc-99m SPECT</th>
<th>2-Tailed t Test p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total patients</td>
<td>1,344</td>
<td>1,755</td>
<td></td>
</tr>
<tr>
<td>Mean age, yrs</td>
<td>61.75 (58.95–64.38)</td>
<td>61.1 (59.1–63.2)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Males, %</td>
<td>854 (63.5%)</td>
<td>969 (55%)</td>
<td>&lt;.002</td>
</tr>
<tr>
<td>Mean BMI</td>
<td>30 (29–31)</td>
<td>30 (28–32)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>CAD prevalence, % (without LLR patients)</td>
<td>63% (72%)</td>
<td>50% (68%)</td>
<td>&lt;.002 ((p = 0.008))</td>
</tr>
<tr>
<td>LLR patients, %</td>
<td>174 (13%)</td>
<td>530 (30%)</td>
<td>&lt;.002</td>
</tr>
<tr>
<td>Previous MI</td>
<td>399 (30%)</td>
<td>60 (3.4%)</td>
<td>&lt;.002</td>
</tr>
<tr>
<td>Previous PCI/CABG</td>
<td>424 (32%)</td>
<td>56 (3.2%)</td>
<td>&lt;.002</td>
</tr>
<tr>
<td>Transmission AC</td>
<td>787 (59%)</td>
<td>1,678 (95.7%)</td>
<td>&lt;.002</td>
</tr>
<tr>
<td>CT AC</td>
<td>557 (41%)</td>
<td>77 (4.3%)</td>
<td>&lt;.002</td>
</tr>
</tbody>
</table>

Values are n, mean (95% confidence interval [CI]), n (%), or % (n).

AC = attenuation correction; BMI = body mass index; CABG = coronary artery bypass graft; CAD = coronary artery disease; CT = computed tomography; LLR = low likelihood ratio; MI = myocardial infarction; PCI = percutaneous coronary intervention; PET = positron emission tomography; SPECT = single-photon emission computed tomography.
When low LR patients were excluded (n = 1,225) there was a marked decrease in specificity (70%, 95% CI: 0.66 to 0.75) with an AUC of 0.86.

Comparison with Rb-82 PET showed superior accuracy of PET overall (p < 0.0001) with a more pronounced difference when low LR patients were excluded. Subgroup analysis showed that the difference in AUC between PET and SPECT for studies with a 50% ICA reference stenosis did not reach statistical significance. However, the prevalence of CAD within this subgroup was significantly higher for Rb-82 PET than SPECT (81.9% vs. 54.1%).

Four of the included Rb-82 studies performed a direct comparison with SPECT but 3 of these used thallium (Tl)-201 (20,23,25) and the study using Tc-99m did not use AC (4). Pooled analysis of these studies also demonstrated superior accuracy of PET (Fig. 4). However, this comparison may have limited relevance for current practice in the majority of centers that do not use Tl-201.

Quality of studies. The result of the QUADAS analysis of the included studies is shown in Figure 5. A large proportion of both Rb-82 PET (10 of 15) and Tc-99m SPECT (5 of 8) studies were affected by referral bias whereby the referral for ICA may have been influenced by the results of the perfusion scan. In 4 of 15 PET (7,9,24,25) and 6 of 8 (10,11,13,14,27,28) SPECT studies it was unclear whether the ICA results were blinded to the results of the perfusion imaging. Patient withdrawals and non-interpretable results were not reported in the majority of both SPECT and PET studies, primarily due their retrospective nature. Patient’s clinical information was not clearly available for image interpretation in any study, which, in effect, may result in a more robust blinded examination of diagnostic accuracy for both modalities. One study included only CABG patients (25) and therefore did not have a representative spectrum of patients.

Discussion

To our knowledge, this is the most comprehensive systematic review and meta-analysis of the diagnostic accuracy of Rb-82 PET that has been undertaken. A
previous meta-analysis by Nandalur et al. (31) did not focus on Rb-82, and rather combined tracers, namely N-13-ammonia, Rb-82, and F-18-Fluorodeoxyglucose (total 840 patients), making it difficult to determine the utility of Rb-28 PET alone. The study, published in 2008, included only 8 of 15 Rb-82 PET studies analyzed in the current systematic review and did not make a comparison to SPECT. They reported sensitivity and specificity of 92% (95% CI: 0.9 to 0.94) and 85% (95% CI: 0.79 to 0.90) for PET MPI overall (31).

A recently published meta-analysis from Jaarsma et al. (32) compared PET and SPECT using all tracers and protocols as well as cardiac magnetic resonance imaging. However, they did not focus on Rb-82 PET, or on an optimized SPECT protocol, as we have done. Furthermore, none of the 8 SPECT studies and only 10 of 15 Rb-82 PET studies included in this review were included in their analysis, primarily because they were published after the final search date of that review.

The current meta-analysis is timely, as there is renewed interest in PET MPI and specifically Rb-82 as a radiotracer following the recent molybdenum-99 shortage, the parent compound of Tc-99m, and the recent recall (and subsequent reintroduction) of the Bracco diagnostics Rb-82 generators in the United States due to strontium breakthrough.

While there are studies that directly compare Rb-82 PET to SPECT, as noted, the comparison does not incorporate the developments in SPECT that have occurred in recent years. We included only SPECT studies that reflect current practice in the majority of large centers and found that Rb-82 PET continues to demonstrate superior diagnostic accuracy.

In addition, Rb-82 PET results in lower radiation exposure than SPECT imaging with exposure estimates are 4- to 5-fold lower than Tc-99m–based SPECT (effective dose 2 to 3.7 mSv) (33–35).

A disadvantage of Rb-82 PET is increased cost relative to SPECT MPI, with costs per scan estimated at USD$1,850 versus USD$1,000 in a 2007 study by Merhige et al. (36). However, the decrease in false positive scans documented at ICA (15.6% vs. 5.2%; p < 0.001) in this study led to a 50% decrease in downstream referral for ICA in the Rb-82 PET group. This, in turn, led to the overall costs of patient management using both modalities being identical when the cost of increased use of ICA was considered. Moreover, there was a trend toward better short-term outcomes in the Rb-82 PET cohort.

**Study limitations.** The nonrandomized fashion in which patients were referred for ICA may have resulted in referral bias within many studies with the potential effect of increasing the apparent test sensitivity while decreasing specificity. However, this affected both Rb-82 PET and SPECT studies equally and was offset to a degree in several studies where low-risk patients who did not undergo ICA were included for analysis.

In several studies the ICA interpretation may not have been blinded to the results of the perfusion scan, leading to potential verification bias occurring with greater frequency in the SPECT studies. However, analysis without these studies did not have an adverse impact on accuracy for Rb-82 PET. There were only 2 SPECT studies unaffected by this and so a subgroup analysis was not performed.

The comparison between Rb-82 PET and SPECT is indirect and involved pooling of data from trials of varying
design. There was some interstudy heterogeneity of scanning protocols and image interpretation, and patient populations were not matched in terms of baseline characteristics such as gender or CAD prevalence, therefore these results need to be interpreted with caution. The prevalence of CAD was higher in Rb-82 PET studies, although it is notable that the specificity of PET remained superior despite this potential handicap. When low likelihood risk patients were excluded, the difference in CAD prevalence between PET and SPECT was decreased somewhat (72% and 68%, respectively) and the difference in accuracy was more pronounced in favor of Rb-82 PET (AUC: 0.94 vs. 0.86; p = 0.08). Furthermore, the ICA reference stenosis varied between studies and while subgroup analysis showed superior accuracy for Rb-82 PET for detection of both 50% and 70% stenosis, this should also be taken into account when interpreting the results.

Of the studies examining Rb-82 PET, 8 of 15 used transmission sources for attenuation rather than the current approach using CT. Subgroup analysis did show increased specificity for attenuation correction performed with CT (89% vs. 86%) but no significant difference in AUC. Also, only 3 studies utilized 3-dimensional PET scanning, which is now commonly employed in clinical practice (26,30,37). While we examined several SPECT studies that utilized CT-based AC (38–41), only 1 (29) met inclusion criteria, primarily because the others did not incorporate both AC and ECG-gated images into image interpretation.

The current study did not consider the added information that may be provided by left ventricular function or transient ischemic dilatation (5,42–44), as these are inconsistently reported in previous accuracy studies. This may underestimate overall accuracy but would be expected to do so for both PET and SPECT. Myocardial flow quantification was also not part of the current study, as there are limited data evaluating the diagnostic accuracy of this modality and the studies that have been done are of varying design. We also elected not to evaluate prognosis data because we are aware that a separate combined analysis of prognosis data using Rb-82 PET is currently underway (personal communication, S. Dorbala and L. Shaw, January 2012).

There is limited evidence that directly compares Rb-82 PET with other imaging modalities. However, there are ongoing prospective studies. The European EVINCI (Evaluation of INtegrated Cardiac Imaging) study will compare the diagnostic accuracy of functional imaging, including PET, with anatomical imaging with CT, in comparison with ICA. The rubidium ARMI (Alternative Radiopharmaceutical for Myocardial Imaging) trial is a prospective cohort study examining patients undergoing Rb-82 3D PET with the aim of comparing diagnostic accuracy and the cost-effectiveness of PET to both Tl-201– and Tc-99m–based radiotracers SPECT using ICA as the gold standard. These studies are ongoing and were not available for this analysis.

<table>
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<tr>
<th>Table 2</th>
<th>Outline of Results of Meta-Analysis of Rb-82 PET Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rb-82 PET Results</td>
<td>Sensitivity (95% CI)</td>
</tr>
<tr>
<td>PET overall (n = 1,344)</td>
<td>90% (0.88–0.92)</td>
</tr>
<tr>
<td>50% ICA stenosis ref (n = 917)</td>
<td>90% (0.87–0.92)</td>
</tr>
<tr>
<td>70% ICA stenosis ref (n = 676)</td>
<td>92% (0.88–0.94)</td>
</tr>
<tr>
<td>Rb-82 PET with CTAC (n = 557)</td>
<td>90% (0.86–0.93)</td>
</tr>
<tr>
<td>Rb-82 PET with transmission AC (n = 787)</td>
<td>90% (0.87–0.92)</td>
</tr>
<tr>
<td>PET studies with known CAD excluded (n = 297)</td>
<td>90% (0.84–0.94)</td>
</tr>
</tbody>
</table>

Values are % (95% CI) or integer values (95% CI). There was no significant difference in area under the curve (AUC) whether a cutoff of 50% or 70% stenosis was used or whether attenuation correction (AC) was performed with computed tomography (CT) or transmission sources.

<table>
<thead>
<tr>
<th>Table 3</th>
<th>Outline of SPECT Meta-Analysis Results</th>
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<tbody>
<tr>
<td>Tc-99m SPECT Results</td>
<td>Sensitivity (95% CI)</td>
</tr>
<tr>
<td>SPECT overall (n = 1,755)</td>
<td>85% (0.82–0.87)</td>
</tr>
<tr>
<td>SPECT ICA stenosis &gt;50% (n = 261)</td>
<td>82% (0.76–0.88)</td>
</tr>
<tr>
<td>SPECT ICA stenosis &gt;70% (n = 1,494)</td>
<td>86% (0.83–0.88)</td>
</tr>
<tr>
<td>SPECT studies with known CAD excluded (n = 1,320)</td>
<td>84% (0.81–0.87)</td>
</tr>
</tbody>
</table>

Values are % (95% CI) or integer values (95% CI). Abbreviations as in Table 2.
Conclusions

In this systematic review and meta-analysis, Rb-82 PET demonstrated sensitivity and specificity of 90% and 88% for detection of obstructive coronary disease on ICA. Rb-82 PET was demonstrated to have superior accuracy in comparison with Tc-99m SPECT with both ECG-gating and AC. While the comparison is indirect, this suggests that more widespread use of Rb-82 PET may be beneficial to improve the accuracy of noninvasive detection of obstructive CAD.

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REFERENCES


Key Words: accuracy • CAD • diagnosis • PET • SPECT.

APPENDIX

For an outline of the search strategies, please see the online version of this article.