

Poster presentation

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Adenosine-stress cardiac magnetic resonance imaging in the assessment of coronary artery disease: A net cost analysis and reimbursement implications

Guenter Pilz*¹, Pankaj A Patel², Ulrich Fell³, John A Rizzo⁴, Hai Fang⁵, Candace Gunnarsson⁶, Maximilian Graw¹ and Berthold Hoefling¹

Address: ¹Clinic Agatharied, University of Munich, Hausham, Germany, ²GE Healthcare, Barrington, IL, USA, ³GE Healthcare, Munich, Germany, ⁴Stony Brook University, Stony Brook, NY, USA, ⁵University of Colorado, Aurora, CO, USA and ⁶S2 Statistical Solutions, Cincinnati, OH, USA

* Corresponding author

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Background

Cost-effectiveness analyses for new imaging modalities have become increasingly important worldwide. In countries like Germany, cardiac magnetic resonance imaging (CMR) is not yet reimbursed. Whether CMR as a gatekeeper tool prior to invasive coronary angiography may lead to cost savings is unknown.

Purpose

To investigate whether the use of CMR in evaluating patients with suspected coronary artery disease (CAD) saves costs by leading to reductions in referrals for cardiac catheterization.

Methods

218 patients from a registry on 605 consecutive CMR patients were matched to a prior sample in which CMR was demonstrated to reliably stratify patients regarding their risk of major cardiac events [1]. Propensity scoring methods were used to match on comorbidity profiles, demographics, CAD-related clinical presentation, and CAD risk as measured by their Morise scores. The matched sample included adult subjects with suspected CAD who were evaluated by stress CMR. We identified the proportion of patients who were able to avoid cardiac catheterization based upon the results of their CMR tests. Given this information, and data on the costs of cardiac catheterization and CMR tests, a net cost analysis was performed.

Results

CMR use substantially reduces the need for cardiac catheterization by 62.4%. Assuming catheterization costs of EUR 619 based on Diagnosis Related Groups (DRG) reimbursement rates in Germany, use of CMR leads to cost savings of EUR 90 on average. The breakeven-level for CMR costs at which it is cost neutral is EUR 386. These results were robust in sensitivity analysis. Cost savings are greatest for patients with lowest risk of CAD as measured by their baseline Morise scores. However, cost savings are likely for all Morise sub groups examined, with the exception of patients at the highest risk of CAD as measured by their Morise score.

Conclusion

CMR is a safe and cost effective approach to evaluating patients with suspected CAD. In addition to saving costs, CMR also significantly reduces radiation exposure to patients. Even at reimbursement levels up to EUR 380 the use of CMR as a gatekeeper saves money. Our results suggest that implementation of reimbursement for CMR in Germany is a useful strategy for promoting better management of patients with CAD.

References

1. Pilz G, et al.: *Am J Cardiol* 2008, **101**:1408-1412.