

Integrated Report Generation for Myocardial Perfusion SPECT: Efficiency Comparison to Report Dictation.

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Objective: Evaluate the efficiency of integrated report generation (IRG) within cardiac SPECT quantification and display software compared to conventional report dictation (CRD).

Methods: Semi-automatic report generator integrated into cardiac SPECT quantification and display software (4D-MSPECT) was used. Reports are generated using a floating on-screen structured reporting dialogue. Input variables may include indications, imaging protocol, radiotracer doses, stress test and EKG results, scan findings, images, physician interpretation and clinical significance. Time requirements for both IRG and CRD were evaluated. Consecutive patients (n=76) referred for myocardial perfusion imaging were reported using both methods. Reporting time using IRG includes entry of radiotracer dosages, stress EKG results, hemodynamic data and image interpretation. Time for CRD includes preliminary report writing, dictation of scan and stress test, and attending physician proofing of transcribed reports.

Results: Total report generation time (sec) using IRG compared to CRD was 191.4 ± 94 vs. 474.6 ± 350 ($p < 0.001$). Radiotracer doses may be entered by nuclear technologists and clinical study indications and results of stress testing entered by exercise physiologist. Total physician time for IRG, including formulation of final impressions and scan significance, was 45.4 ± 56 ($p < 0.01$). Assuming attending physicians only dictate scan results and sign reports without proofing, or resident/fellow involvement, time savings is still substantial: 45.4 ± 56 vs. 225.7 ± 219 ($p < 0.01$). Total reporting times were significantly faster both in patients with normal or near normal scans (n=32); 148.2 ± 16 vs. 367.8 ± 33 ($p < 0.001$) and in those with significant scan abnormalities (n=44); 222.9 ± 62 vs. 552.3 ± 358 ($p < 0.01$), respectively. A new reporting dialogue permitting simultaneous SPECT image review and reporting further reduces physician time in patients with abnormal scans (n=44) from 65.3 ± 49 to 46.7 ± 21 ($p < 0.01$) while assuring interpretative accuracy and eliminating the additional time need for preliminary report writing 66.7 ± 32.6 .

Conclusion: Reporting of SPECT myocardial perfusion studies using IRG within SPECT quantification and display software results in significant time saving compared to conventional reporting methods both in patients with normal and those with abnormal scan findings.