Semi-structured clinical event documentation of acute adverse reactions to contrast

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PURPOSE

Allergic-like and physiologic reactions can occur acutely following contrast media administration. An on-site radiologist, including trainees, is typically the first physician responder to such events. Key initial assessments of the event inform immediate as well as future management. These assessments include the culprit contrast class and specific agent, the type of reaction mechanism, and the severity of the reaction.

METHODS

INTERVENTION

Contrast Incident Support and Reporting (CISaR) is a web browser-based application for acute contrast event documentation intended for the responding radiologist. Users look up the patient and imaging exam performed and then select boxes specifying elements such as contrast type, reaction mechanism and severity based on specific signs and symptoms (as defined in the ACR Contrast Manual), and treatments provided.

The responding radiologist should record these assessments explicitly and communicate a plan for contrast administration to those who may request or protocol radiologic exams for this patient in the future, rather than delegate these details for non-expert providers to record, for the patient to relay, or for future clinicians to infer.

However, documentation of clinical events in the electronic medical record (EMR) is a skill that radiologists infrequently practice, so important elements may be overlooked at the point of care (see Balfour et al., JACR 2015). Further, the American College of Radiology (ACR) recommends that contrast adverse events be documented in the radiology report, but because the responding radiologist may not be the one who interprets the corresponding study, the event is often omitted from the radiology report.

We propose that providing a semi-structured clinical documentation support tool can improve the completeness of radiologists’ notes on acute contrast reactions.

RESULTS

Baseline (8 mo) N=149 events

Completion rate: Comparison of the proportion of acute contrast reactions that have any radiologist event documentation, which can be written in a chart note directly, in a radiology report directly, and/or via CISaR. p<0.0001

Completeness rate: Comparison of the proportion of reactions with radiologist event documentation that contains each key element: the culprit contrast class or specific agent (eg, iodinated contrast), reaction severity (eg, mild), reaction type (eg, allergic-like), and a recommendation for future contrast exposure (eg, premedication). *, p<0.001 for all comparisons.

High quality clinical documentation of acute contrast events by radiologists was observed following implementation of a semi-structured documentation tool that integrates with both the EMR and radiology reporting software. With the tool available, more events were documented by radiologists and greater than 90% of reports included the key assessments of the culprit contrast agent or class, reaction severity, and reaction mechanism type, as well as a recommendation for preventative management.