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Risk factors for Adverse Reactions to CT Contrast Agents

Japanese researchers have created a scoring rule to predict adverse reactions to contrast agents used in computed tomography. The study is published online in BMC Medical Informatics and Decision Making.

This was a retrospective cohort study of all adult patients undergoing contrast enhanced CT scan for 7 years. The subjects were randomly divided into either a derivation or validation group. Baseline data and clinically relevant factors were collected from the electronic chart. Primary outcome was any acute adverse reactions to contrast media, observed for during 24 hours after administration. All potential candidate predictors were included in a forward stepwise logistic regression model. Prediction scores were assigned based on β coefficient. A receiver operating characteristic (ROC) curve was drawn, and the area under the curve (AUC) and incidence of acute adverse reactions at each point were obtained. The same process was performed in the validation group.

36,472 patients underwent enhanced CT imaging: 20,000 patients in the derivation group and 16,472 in the validation group. A total of 409 (2.0%, 95% CI:1.9-2.3) and 347 (2.1%, 95% CI:1.9-2.3) acute adverse reactions were seen in the derivation and validation groups. Logistic regression analysis revealed that prior adverse reaction to contrast agents, urticaria, an allergic history to drugs other than contrast agents, contrast agent concentration >70%, age <50 years, and total contrast agent dose >65 g were significant predictors of an acute adverse reaction. AUC was 0.70 (95% CI:0.67-0.73) and 0.67 (95% CI:0.64-0.70) in the derivation and validation groups. The authors suggest a prediction model consisting of six predictors for acute adverse reactions to contrast agents used in CT.

Reference: Daiki Kobayashi, Osamu Takahashi, Takuya Ueda, Gautam A Deshpande, Hiroko Arioka and Tsuguya Fukui. "Risk factors for Adverse Reactions from Contrast Agents for CT" BMC Medical Informatics and Decision Making 2013, 13:18 doi:10.1186/1472-6947-13-18

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