00353 Assessing the Usefulness of the Subcategories of American College of Radiology 2013 Guidelines in Predicting Brain Abnormalities in Children

Tang Phua Hwee, Sum Min Yi, Kathy Low

KK Women's & Children's Hospital

Aims: American College of Radiology (ACR) 2013 guidelines are available to guide MRI orders. Some indications for MRI brain can be discretely classified into one ACR category, some fall into more than one discrete ACR category. We aim to investigate the percentages of abnormal brains under the various discrete ACR categories for paediatric MRI brain scans.

Methodology: This is an Institutional Review Board (IRB) approved retrospective study. Paediatric MRI Brain scans from year 2014 to 2017 were collated and classified into the various ACR indications for scan. ACR categories 15 and 16 were excluded from analysis as they consisted of abnormal cases on follow up or were imaged for surgical planning. The remaining cases were then classified into abnormal or normal brains based on their MRI report.

Result: There were 1114 orders that were classified under one ACR category, 360 orders that fell under more than one ACR category and 984 orders that did not fall under any ACR category. There were 429 cases (38.5%) with brain abnormalities in those ordered under one ACR category (ranged from 31.1% to 100% under the various ACR categories), 215 cases (59.7%) for those ordered under more than 1 ACR category and 203 cases (20.6%) for those that did not fall under any ACR category. Cases ordered according to ACR guidelines had 23% higher percentage of brain abnormalities than those ordered not according to ACR ($p<0.01$), and those which fell under more than one category had 21.7% higher percentage of abnormalities compared to those only in one category ($p<0.01$).

Conclusion: Brain scans that are ordered according to ACR guidelines have higher yield of brain abnormalities. Proportion of brain abnormalities differed among the various ACR categories.