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Audit Project on Arterial Phase of CT Liver Protocol

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Introduction

The LI-RADS (Liver Imaging Reporting and Data System) 2014 published by American College of Radiologists (ACR) recommends that late arterial phase is preferred to early arterial phase on CT due to higher sensitivity in detection of hepatocellular carcinomas (HCCs). It was noted that the newly installed CT machine in our department had a lower proportion of optimal arterial phase obtained when compared with the other CT machine.

Objectives

The arterial phase studies performed under CT liver protocol were reviewed and adjusted in order to meet the recommendation of ACR.

Methodology

Contrast CTs performed under liver imaging protocol were retrieved from PACS server. The arterial phases of the scans were reviewed independently by two fellows of Royal College of Radiologists (FRCR). When there was discrepancy among the two reviewers, the images would be reviewed together and consensus would be made. The results were categorized as "Too early" (hepatic arteries enhanced but portal veins not enhanced), "Satisfactory" (hepatic arteries and portal veins enhanced, hepatic veins not yet enhanced by antegrade flow), or "Too late" (hepatic arteries and portal veins enhanced, hepatic veins enhanced by antegrade flow).

Result

Results:

In phase I audit, 50 cases were reviewed, in which 25 of the cases (50%) were categorized as "Too early" while the other 25 cases (50%) were "Satisfactory". We decided to implement a new protocol by introducing an additional 2 seconds delay to our usual arterial phase scan protocol. In phase II audit, 55 cases were reviewed after implementation of the new protocol. 13 of the cases (24%) were considered "Too early" while 42 cases (76%) were "Satisfactory". None of the results were classified as "Too late" in the two phases. Results from the two phases were compared using Chi-squared test. A p value