DECLINING USAGE OF MULTI-GATED ACQUISITION SCANS FOR CHEMOTHERAPY RELATED CARDIOMYOPATHY SCREENING

Poster Contributions
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Background: There is no broad consensus on the imaging method or schedule to screen for Chemotherapy Related Cardio-toxicity (CRC). Multi-gated Acquisition Scan (MUGA) has traditionally been used to screen for CRC over the past 4 decades. Radiation exposure from serial MUGA scan usage and second cancer risk is a major public health concern in this ever-increasing cancer survivor population. Echocardiogram and more recently Cardiovascular Magnetic Resonance (CMR) are also used for CRC screening and are non-radiating. Echocardiogram is challenged by high test-retest variability, and by poor acoustic windows in some patients. CMR has advantages of accuracy and ability to identify early cardio-toxicity changes. We reviewed the utilization rates and trends for these three procedures over the past 3 years.

Methods: We identified 1300 consecutive patients over three years from 2011 to 2013, who received one or more of the selected four cardiotoxic drugs - doxorubicin, daunorubicin, idarubicin or trastuzumab. We reviewed the total number of Echo, MUGA and CMR procedures obtained on each of these patients, and analyzed for the utilization rates for each procedure and for any evolving trends in their usage over the three years.

Results: There were a total of 590, 975,1033 cardiac imaging tests performed in 2011, 2012 and 2013 respectively in this group with a clear trend towards declining use of MUGA scans with a simultaneous increasing trend to use Echo (P <0.001) and CMR (p = 0.25). MUGA scan usage decreased from 32% to 20% whereas Echo utilization increased from 68 to 78% and CMR from 0.7% to 1.6% in the 3-year period.

Conclusion: Our study is the first in the literature to demonstrate a broad decline in the usage of MUGA scans in the oncology patients over the most recent 3 years. Concern for radiation exposure could be one of the reasons for declining trend for MUGA use. Most of the decline in MUGA scan usage has been replaced by increasing usage of Echo, and to a smaller extent by CMR. Caution should be exercised while using Echo interchangeably for MUGA due to its high test-retest variability compared to MUGA and CMR.