EVALUATION OF CARDIOTOXICITY OF 5-FLUOROURACIL/ FOLINIC ACID TREATMENT BY ECHOCARDIOGRAPHY AND TISSUE DOPPLER

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\textbf{Background:} 5-fluorouracil (5-FU) is a mainstay of the chemotherapeutic treatment of gastrointestinal malignancies. In addition to its beneficial antitumor effects, 5-FU unfortunately has a number of important cardiac toxicities.

\textbf{Methods:} This study was designed and conducted as a prospective study using patients with colorectal, gastric and pancreatic cancer (23 patients)\textsuperscript{1} treated with antineoplastic drugs at the Medical Oncology department of the Bulent Ecevit University School of Medicine between May 2011 and Nov 2012. The study was conducted according to the recommendations of Declaration of Helsinki on Biomedical Research involving human subjects and was approved by the local Ethics Committee.

\textbf{Results:} There was no statistically significant differences between the baseline and end of the treatment results according to the general characteristics. The mean age of the participants was 52.9 ± 5. All patients had surgery before the chemotherapy. 14 patients had colorectal cancer, 7 patients had gastric cancer and remaining 2 patients had pancreatic cancer. Assessment to left ventricular functions, LVEF decreased 65% ± 3 to 63% ± 4 following the chemotherapy (p = 0.056). Left ventricular end-diastolic diameter (LVEDD) decreased after the chemotherapy (4.42 to 4.29 cm, p = 0.095). We did not find any significant change for the parameters, left ventricular end systolic diameter (LVEDS), ascendent aortic diameter, myocardial performance index (Tei index) and left atrial diameter also presented in the table 2. Echocardiographic measurements for the right ventricle, mean right ventricular thickness (RVT) C was 0.49 ± 0.12 cm before chemotherapy and 0.57± 0.6 cm at the end of the treatment (p = 0.51). Mean tricuspid annular plane systolic excusion (TAPSE) values were 2.09± 0.36 and 2.00± 0.36 cm respectively (P = 0.32). Right ventricular Tei index related to the chemotherapy did not change significantly (0.26 and 0.31, p = 0.13, respectively).

\textbf{Conclusion:} This study showed that, 5FU which was given by injection along with a drip (infusion) in 15–30 minutes is not associated with early cardiotoxicity as assessed by TAPSE, Left Ventricle Tei index and tissue Doppler echocardiography. Furthermore, five days of IVP FUFA regimen had no significant cardiac side effects as evaluated by TAPSE and Left Ventricle Tei index.

\begin{table}
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\begin{tabular}{|c|c|c|}
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Parameter & Before, sd & After, sd & p \\
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\textbf{Left Ventricular} & & & \\
LVEF% & 65±3 & 63±4 & 0.056 \\
LVEDD, cm & 4.4±0.44 & 4.2±0.52 & 0.095 \\
LVEDS, cm & 2.8±0.42 & 2.7±0.31 & 0.32 \\
AAD, cm & 3.0±0.34 & 2.9±0.45 & 0.11 \\
MPI & 0.5±0.14 & 0.5±0.21 & 0.08 \\
LAD, cm & 3.4±0.44 & 3.5±0.44 & 0.17 \\
\hline
\textbf{Right Ventricular} & & & \\
RVT, cm & 0.49±0.12 & 0.57±0.62 & 0.51 \\
TAPSE, cm & 2.09±0.38 & 2.00±0.36 & 0.32 \\
Tei index & 0.26±0.17 & 0.31±0.21 & 0.13 \\
RVEDD & 2.2±0.4 & 2.2±0.4 & 0.84 \\
\hline
\textbf{Tissue Doppler} & & & \\
IVRT & 92±22 & 90±24 & 0.8 \\
IVA-RV, m/sec(2) & 7.2±2.2 & 7.0±1.9 & 0.7 \\
TAE, cm/s & 0.5±0.11 & 0.5±0.13 & 0.20 \\
TAA, cm/s & 0.5±0.14 & 0.5±0.11 & 0.28 \\
MAE, cm/s & 0.5±0.13 & 0.6±0.15 & 0.12 \\
MMA, cm/s & 0.6±0.13 & 0.7±0.13 & 0.33 \\
Sm-lat, cm/s & 8.7±2.7 & 9.1±2.5 & 0.47 \\
Sm-inf, cm/s & 8.2±0.94 & 7.7±1.5 & 0.18 \\
Sm-Sep, cm/s & 7.7±1.5 & 7.4±1.5 & 0.56 \\
Sm-RV, cm/s & 11.3±1.2 & 11.5±1.7 & 0.8 \\
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\end{tabular}
\caption{Echocardiographic parameters of the study population before and after the treatment.}
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