

5-Fluorouracil-related Cardiomyopathy and Management Strategy

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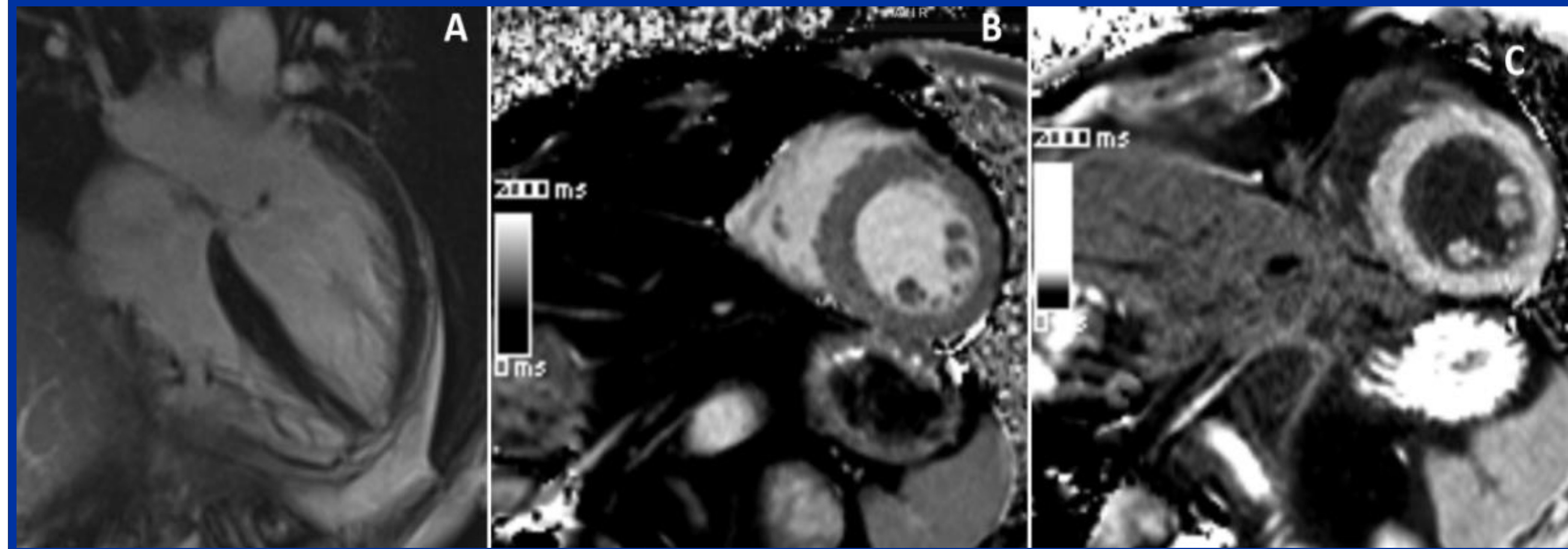
BACKGROUND

- Clinical awareness and management of 5-FU-related cardiomyopathy

Case #1

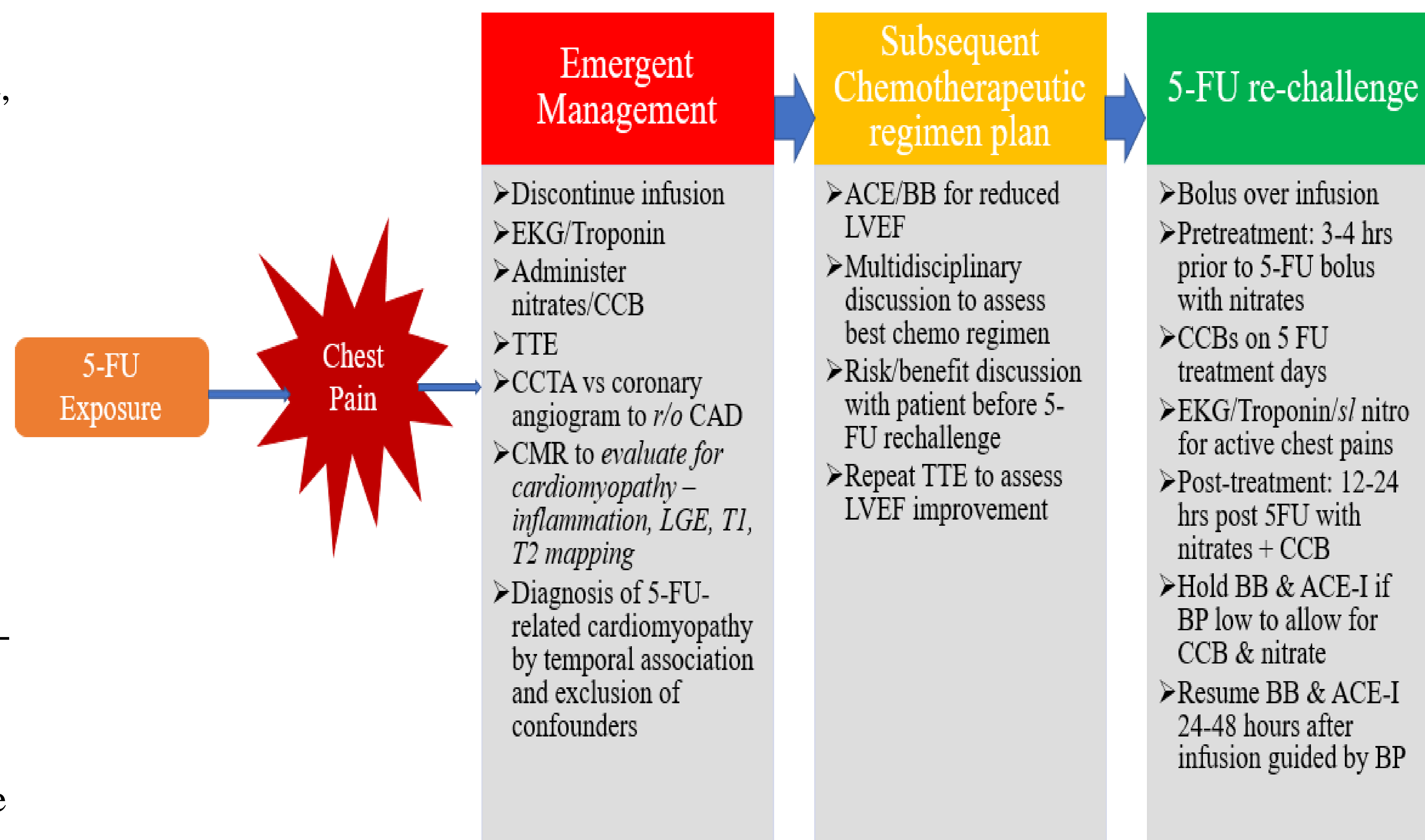
- 46-year-old man with recently diagnosed colon cancer + liver metastasis presented to the ED with chest pain radiating to his left arm, while on 5-FU infusion, resolving with nitroglycerin.
- Pt hemodynamically stable, EKG unremarkable, HsTnT peaked at 140 ng/L.
- Transthoracic echocardiogram (TTE) revealed reduced LVEF of 30-40% with global hypokinesia, CCTA showed no CAD.
- CMR demonstrated global systolic dysfunction with LVEF of 46%, no LGE, and normal ECV (Figure 1).
- He was initiated on metoprolol succinate, lisinopril and sent home.
- In cardio-oncology follow-up, he denied any complaints, repeat TTE showed normalization of LVEF.
- We decided to proceed with 5-FU re-challenge with our institutional cardioprotective regimen.
- He was hospitalized for FLOXNordic (5-FU bolus) along with nitrates and a calcium channel blocker (CCB).
- Given his persistent low BP, heart failure drugs were held on days of chemotherapy.

Figure 1: CMR Images with A-4 Chamber LGE showing no LGE, B- Pre-contrast MOLLI and C- Post-contrast MOLLI with a calculated ECV of 25



5-FU rechallenge can be considered in patients with 5-FU related cardiomyopathy with a multi-disciplinary approach involving oncology and cardio-oncology, based upon the following proposed algorithm

Figure 2: Proposed management algorithm for 5-FU related cardiomyopathy



- He tolerated 10 cycles of chemotherapy followed by surgery.

Case #2

- 69-year-old female with metastatic mucinous colon cancer presented to our institute in March 2021 for a second opinion.
- She had undergone surgery followed by adjuvant chemotherapy using modified FOLFOX.
- After cycle 1 she was hospitalized for shortness of breath and palpitations. TTE revealed severely reduced EF of 20%, comfort measures were pursued under hospice care.
- After a tumor board discussion and cardio-oncology evaluation, a plan was made for re-initiation of FLOXNordic.
- She denied chest pains or heart failure symptoms, was started on lisinopril and metoprolol succinate.
- Repeat TTE showed LVEF of 45% with global hypokinesia.
- Stress CMR ruled out ischemia, had no LGE and normal ECV, and an EF of 55%.
- We used a similar strategy of 5-FU bolus, CCBs with nitrates on days of chemotherapy and holding HF medications on those days.

DISCUSSION

- Etiology of 5-FU-related cardiomyopathy is challenging and needs a thorough evaluation.
- In our patients, we believe it was likely coronary vasospasm given elevated troponins, reduced LVEF, CMR with no LGE, and normal ECV.
- CCBs and nitrate are the mainstays for treating vasospasm, CCBs are contraindicated in HF.
- 5-FU re-initiation should involve a multidisciplinary team approach (Figure 2).