Foundational Role of Nurse Navigation in a Community-Based Cardio-oncology Program: The Franciscan Health Indianapolis Experience

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BACKGROUND

- A growing awareness of the potential for cardiotoxicity due to new chemotherapeutic agents has led to the rapid development of cardio-oncology programs in both the academic and community-based setting.
- Utilization of oncologic nurse navigators have led to more timely treatment and greater use of oncologic guidelines (1,2).
- Herein, we describe our community-based experience, focusing on the pivotal role of our cardio-oncology nurse navigators.

METHODS

- Unique program model: Oncologists and cardiologists are hospital employed and part of the same physician network leading to shared goals and administrative support.
- Program staff: 2 cardio-oncology nurse navigators (at the center with the patients), 1 medical assistant, 3 cardiologists, 10 oncologists, and 2 pharmacists (Figure 1).
- Virtual Clinic: Patients are referred to our 3 cardiologists by our nurse navigators who screen the outpatient oncology census utilizing an embedded EMR risk score (CRS) to identify patients at risk for cardiac complications (Figure 2).
- Screening Algorithms: 2D echocardiography with IV Definity and strain along with biomarker assessment (troponin I) are being utilized to screen for cardiotoxicity in patients receiving trastuzumab and anthracycline chemotherapy. cMRI is being utilized to assess LV function when echo not sufficient and to diagnose myocarditis with checkpoint inhibitors.

FIGURE 1

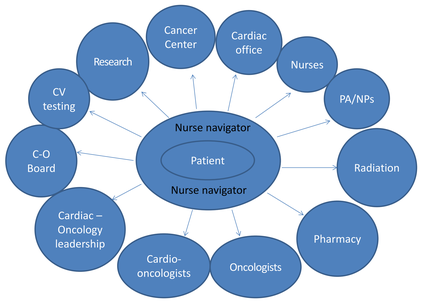

FIGURE 2

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Cardio-oncology Risk Calculator

Cardiac monitoring: Baseline echo/troponin and then per risk score recommendations

Cardiac Risk Score (CRS)
> 7: Very high **6-7:** High **4-5:** Intermediate

Medication-related risk	Score
High (risk score of 4)	
Anthracyclines, cyclophosphamide (>150mg/kg, > 1.5 gm2/daily), Ifosfamide, Clofarabine, Herceptin	
Intermediate (risk score of 2)	
Docetaxel, Pertuzumab, Sunitinib, Sorafinib	
Low (risk score of 1)	
Bevacizumab, Dasatinib, Imatinib, Lapatinib	
Rare (risk score of 0)	
Etoposide, rituximab, thalidomide	
Medication Risk Score	

Patient-related risk factors (1 point per risk)	Score
Cardiomyopathy	
CAD or equivalent (include PAD)	
HTN	
Diabetes mellitus	
Prior or current use of anthracycline	
Prior or current chest radiation	
Smoking	
Atrial fibrillation	
Hyperlipidemia	
BMI >30	
OSA	
Female	
Age <15 or >60	
Patient Risk Score	

TOTAL RISK SCORE:

Monitor Recommendations

Baseline 2D TTE w strain and troponin for all that require monitoring

Very High: 2D TTE w strain and troponin – Q other cycle; completion; one year post infusion

High: 2D TTE w strain and troponin – Q 3 cycles; completion; and one year post infusion

Intermediate: 2D TTE w troponin – midterm; completion

Low and Very Low: no routine testing unless cardiovascular symptoms develop

Baseline echo/troponin results:
_____
_____

Baseline 2D TTE with strain and troponin/BNP for all who require monitoring

Anthracyclines: baseline; at cumulative dose of 240-300 mg/m2; at cumulative dose of 400-450 mg/m2; prior to each additional 50 mg/m2; completion and 1 year

Herceptin/Perjeta: Q 3 months, completion and then every 6 months X 2 years (neoadjuvant with both drugs echo surveillance is recommended Q 6 weeks)

CRS _____ cardiac monitor recommendation_____

CRS adapted from Hermann et al. 2014

Key program highlights

- Goal: to assist oncology through recommended medical care with minimal CV side effects and to optimize patient survivorship/QOL
- Physician champions for cardiology/oncology
- Cardio-Oncology board oversight – collaborative leadership
- Cardio-Oncology nurse navigators with strong cardiac and oncology experience
- Tools and methods identified for patient identification (start small and phase patient surveillance)
- Surveillance testing process algorithms
- Timely referrals to Cardio-Oncology clinic within 1-2 weeks
- Algorithms – based on ASCO and NCCN guidelines (4)
- Building awareness (case conferences, symposia): nursing, physicians, administration

RESULTS

- From January 2017-November 2018, 259 patients have been referred to the Franciscan cardio-oncology clinic, with breast and gastrointestinal malignancies representing the highest percentage of referrals (22 and 20%, respectively) (Figure 3)
- Patients navigated:
  - » IV therapy 2017 – 2018 : 625 patients (anthracyclines, trastuzumab, pertuzumab, docetaxel, bevicizumab, 5-FU)
  - » Oral 2018 – 300 patients (Sunitinib, Ibrutinib, Osimertinib, Lenvatinib, Pazopanib); 15 meds with echo/ 37 meds with EKG surveillance)
- When and why patients are referred to Cardio-Oncology clinic (Figure 4A/4B)
- Comorbidity distribution of patient referrals based upon CRS score (Figure 5)

FIGURE 3
Types of malignancies referred to cardio-oncology

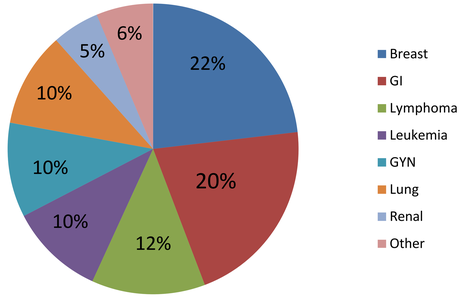


FIGURE 4A
Referral patterns for cardio-oncology patients

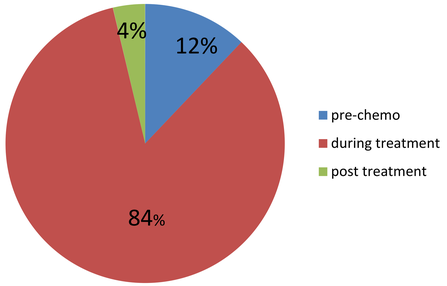


FIGURE 4B
Breakdown of referral during treatment

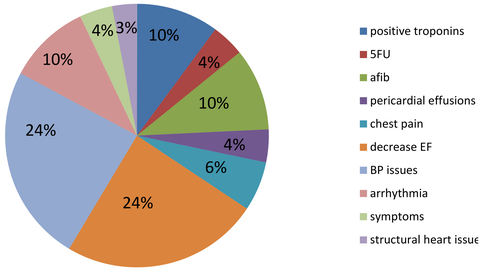
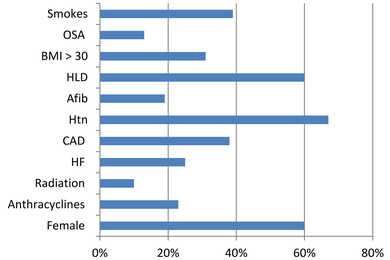


FIGURE 5
Co-morbidities of patient referrals



No med score	42%	Herceptin	18%
1 med score	7%	Anthracyclines	23%
2 med score	5%	Avg CRS score	8
4 med score	40%		
6 med score	4%		
8 med score	2%		

Nurse navigator key wins

- Port access for IV contrast for echo surveillance
- EKG machine – called for patients daily in office/infusion/ radiation – assist with CV assessment triage
- Troponin/BNP labs on anthracycline and Trastuzumab patients – algorithm for positive results (5).
- Hypertension protocol for infusion chemotherapy patients
- Education for oncology nursing staff regarding what cardiac complications to look out for and report (hypertension, tachycardia, ECG interpretation)
- Oral chemotherapy surveillance plan
- Tele- health visits
- Identify patients for research protocols (SURVIVE registry)
- Organizing a quarterly cardio-oncology grand rounds

Oncologist perspective about our program

"Helps to provide better and more appropriate treatment plans"

"The collaborative clinic makes care for our patients a priority"

With the increased attention to our patient's cardiac status we can move through our patient's treatment plans with more ease and confidence"

"I don't know how we did it without them"

CONCLUSIONS

In summary, our cardio-oncology nurse navigators have been instrumental in helping launch our program, have been active in the development of numerous protocols and work flow process, and represent one approach to developing a cardio-oncology program to meet the growing demands of the burgeoning field.

REFERENCES

1. Peckham J and Mott-Coles S. Interprofessional Lung Cancer Tumor Board: The Role of the Oncology Nurse Navigator in Improving Adherence to National Guidelines and Streamlining Patient Care. Clin J Oncol Nurs. 2018 Dec 1; 22(6): 656-662.
2. Munoz R, et al. Multidisciplinary Cancer Care Model: A Positive Association Between Oncology Nurse Navigation and Improved Outcomes for Patients With Cancer. Clin J Oncol Nurs. 2018 Oct 1;22(5): E141-E145.
3. Herrmann J, Lerman A, Sandhu NP, Villarraga HR, Mulvagh SL, Kohli M. Evaluation and management of patients with heart disease and cancer: cardio-oncology. Mayo Clin Proc. 2014;89(9):1287–306.NCCN Guidelines Version 2.2017 for Anthracycline Induced Cardiotoxicity
4. Prevention and Monitoring of cardiac dysfunction in survivors of adult cancers ASCO Clinical Practices Guidelines J Clin Oncol.2016 Dec 5
5. Biochemical Markers for prediction of Chemotherapy Induced Cardiotoxicity Am J Clin Pathol 2008;130:688-695.

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