Ontario Health
Cancer Care Ontario

Screening for Secondary Solid Malignancies After Stem Cell Transplantation

These recommendations were developed by the Stem Cell Transplant Survivorship Community of Practice, under the direction of Cancer Care Ontario's Stem Cell Transplant Advisory Committee.

Introduction

The risk for people who have undergone a Stem Cell Transplant (SCT) to develop a secondary solid malignancy is estimated to be as much as two to five times more than the general population, with gender, age, and geographic area adjusted rates taken into account (1-6). The most common sites affected are the oral cavity and pharynx, bones, soft tissues, liver, thyroid, central nervous system and skin. A crucial component of long-term follow-up care of SCT survivors includes surveillance and screening for the development of secondary solid-tumor cancers by the patient's Primary Care Provider in addition to their annual post-SCT Long-Term Follow-up (LTFU) assessment (7). The Recommendations for screening and surveillance outlined in this document are based on the best available information to date (1-6) and have been developed through collaborative efforts across Ontario SCT centres after reviewing and interpreting various working group guidelines, and through assessment of both organizational data sets and larger data repositories. At this time there is no way to further risk stratify for this population and the screening recommendations are based on scheduling of an annual/semi-annual review in combination with a heightened awareness of patients that are at particularly increased risk, including those who are on prolonged immune suppression, are of advanced age, underwent childhood transplant, have increased radiation exposure, and experienced more significant Graft vs Host disease over a longer period of time.

Recommendations

- An annual visit for secondary malignancy screening for all patients (age-appropriate screening) at the SCT centre's LTFU clinic or in collaboration with a community/primary care partner;
- Annual screening to include the following assessments, education, and counselling:
    1. Counselling to avoid high risk behaviors
        - Offer smoking cessation counselling and refer to community programs;
        - Avoidance of UV skin exposure and excess alcohol consumption;
        - Counsel patients to engage in wellness activities and follow the Canada Food Guide for healthy eating;

2. Teach and encourage patients to perform self-examination (oral, skin, genitalia) and report findings for follow-up to their clinical care team;
3. History and physical exam, including oral cavity, skin, thyroid, and genitalia;
4. Skin: Skin cancer education with sun exposure and sunscreen focus. If there is a lesion of concern on examination, refer to Dermatology;
5. Thyroid: check TSH, FT4. If palpable nodule on examination, organize thyroid US/FNA +/- referral to Endocrinology/Head & Neck;
6. Oral cavity: Head & Neck referral if suspicious lesion noted on examination;
7. Respiratory symptom assessment and examination with imaging as appropriate;
8. Breast:
    - Breast screening based on history of radiation treatment.
    - For SCT patients that received radiation under age 30, annual mammogram and MRI (or screening breast ultrasound, if MRI is not medically appropriate) should start at age 25 or 8 years after radiation, whichever is later.
    - For SCT patients that have not received radiation, or received radiation after age 30, screening with annual mammogram should start at age 40.
    - Encourage breast awareness so patients are more likely to notice any unusual changes (e.g., new lump or dimpling, redness, nipple discharge).
9. Colorectal: Screen according to the recommendations from ColonCancerCheck, Ontario's colorectal cancer screening program.
    - For those patients at average risk for colorectal cancer (people ages 50 to 74 with no first-degree relative who has been diagnosed with colon cancer), screening with the fecal immunochemical test (FIT) every two years from ages 50-74. Patients at average risk can choose to get screened with flexible sigmoidoscopy every 10 years from ages 50-74. Colonoscopy is not recommended for screening people at average risk for colon cancer.
    - For those patients at increased risk for colorectal cancer (people with a family history of colon cancer that includes one or more first-degree relatives who have been diagnosed with the disease), screening with a colonoscopy starting at age 50, or 10 years earlier than the age their first-degree relative was diagnosed with colon cancer, whichever comes first.
    - Additional resources related to colorectal cancer screening are available on the ColonCancerCheck screening program website.

10. Cervical: People with a cervix, ages 21[1] to 70, who are or have ever been sexually active, and are at elevated risk (e.g., have had a stem cell transplant) should be screened with an annual cytology (Pap) test. Additional resources related to cervical cancer screening are available on the Ontario Cervical Screening Program website.
11. Prostate: Annual DRE +/- PSA from age 50 as guided by symptoms, family history and PSA level. Decisions regarding PSA screening should be made as a part of a shared decision-making process involving a discussion between a patient and their primary care provider. Discussions about screening decisions should include:
    - The patient's risk for prostate cancer, including family history and race
    - The risks associated with biopsy and subsequent treatment, if indicated
    - The changing landscape of management towards active surveillance for low risk disease
    - The patient's general health and life expectancy, and personal preferences

    Additional resources related to prostate cancer screening, such as key messages and a test decision grid that can help guide discussions with patients, are available here.

[1] With the implementation of human papillomavirus testing in the future, we will be changing the age of initiation to age 25 except for people who are immunocompromised; if they are or have ever been sexually active, they can continue to start at age 21.

References

1. Lowe, T, Smita, B, Somlo. Second malignancies after allogeneic hematopoietic cell transplantation. Biology of Blood and Marrow Transplantation. 2007;13(1):1121-113

2. Majhail NS, Rizzo JD, Lee SJ, Aljurf M, Atsuta Y, Bonfirm C, et al. Recommended screening and preventative practices for long-term survivors after hematopoietic cell transplantation. Bone Marrow Transplantation 2012;47(3):337-341

3. Inamoto Y, Shah NN, Savani BN, et al. Secondary solid cancer screening following hematopoietic cell transplantation. *Bone Marrow Transplant*. 2015;50(8):1013-1023

4. Bomken,S, Skinner, R. Secondary malignant neoplasms following haematopoeitic stem cell transplantation in childhood. Children. 2015;2:146-73

5. Baker KS, DeFor TE, Burns LJ, Ramsey NK, Neglia JP, Robison, LL. New malignancies after blood or marrow stem-cell transplantation in children and adults: incidence and risk factors. J Clin Oncol. 2003;21:1352-1358

6. Michelis, FV, Kotchetkov, R, Grunwald, RM, Azeem, A, Atenafu, EG, Lipton, J, et al. Long term incidence of secondary malignancies after allogeneic hematopoietic cell transplantation: a single-center experience. Biology of Blood and Marrow Transplantation 2017;23(6):945-951

7. Hasmi, S, Caprpenter, P, Khera, N, Tichelli, A, Savani, B, N. Lost in transition: the essential need for long-term follow-up clinic for blood and marrow transplant survivors. Biology of Blood and Marrow Transplantation 2015;21(2):225-232