Preliminary Results of a Pilot Study Using Validated Nutrition Screening Tools to Investigate the Nutrition Evolution of Patients with Acute Myeloid Leukemia

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Introduction

At Mayo Clinic, adult patients with Acute Myeloid Leukemia (AML) are treated in hospitalized settings due to the unique nature of the disease and traditional inpatient stay settings. Access to a registered dietitian (RD) varies in these settings and we hypothesize that this contributes to late identification of nutrition risk and subsequent consultation. Because research on the nutrition evolution of patients with AML through the full continuum of treatment (induction through transplant) does not exist, specific nutrition intervention guidelines have not been established.

Objectives

The descriptive pilot study will determine what nutrition risk patterns exist among patients being treated for AML, from diagnosis through transplant. The study will compare the Malnutrition Screening Tool (MST), Patient Generated Subjective Global Assessment (PG-SGA) and current hospital admission malfunction screening tool for specificity and sensitivity in the population.

Methods

At two to four week intervals subjects answered eight questions about their nutrition status. Three questions constitute the nutritional status in our hospital’s nutrition screening. The first four questions are subjective questions (one general, one dietary, one feeling, and one activity). Subjects completed the PG-SGA® questions using a touchscreen application (Pt-Global v. 2.6, pt-global.org). Researchers conducted nutrition focused physical exam and chart review to complete the full PG-SGA®. Results will be compared for specificity and sensitivity in determining nutrition risk.

Results

We have preliminary results from five subjects as of 5/14/17 and will have results from at least ten patients by June of 2017.

Conclusions

Results of this pilot study may contribute to evidence-based nutrition care guidelines for this population.

Background

Treatment for acute myeloid leukemia (AML) often includes several cycles of induction and/or consolidation chemotherapy and possible hematopoietic stem cell transplant (HSCT), all of which have the potential to impact the nutrition status of patients. We hypothesize that nutrition risk and the need for targeted nutrition interventions will change throughout treatment.

In January 2017, Mayo Clinic conducted a pilot study with a goal accrual of 24 subjects in the first year. The aim of the study is to describe the nutrition evolution of patients undergoing treatment for AML, and to compare nutrition screening and assessment tools in this patient population.

Methods

Adult patients admitted to Mayo Clinic (Rochester, MN) hematology service are identified through hospital census. Subjects must be consented and respond in person (inpatient, hospital based outpatient, or ambulatory setting) to the research questions. Researchers include Registered Dietitian Nutritionists (RDNs) and Dietetic Interns who have received training in conducting nutrition focused physical exams (NPFIE).

Inclusion Criteria

• Adults ≥18 years
• New AML diagnosis
• Able to read and understand English
• Willing to answer questions using an iPad tablet

Subjects are asked a series of questions related to their nutrition intake and history to assess their overall nutrition status. This series of questions is repeated every two to four weeks as subjects are followed during active treatment and recovery. These questions represent two distinct sets of questions.

The first set of questions is a series of nutrition screening questions that constitute our hospital admission nutrition screening tool (Fig.1) and the validated Malnutrition Screening Tool (Fig.2), these questions are asked orally by the researcher.

The second set of nutrition-related questions is the Patient Generated Subjective Global Assessment (PG-SGA®) and these questions are delivered via iPad tablet utilizing the Pt-Global (pt-global.org) digital platform of the PG-SGA®(Fig.3).

Subjects indicate their answers via touch screen to complete the weight, food intake, symptoms, and activities and functions portions (also referred to as the PG-SGA®FSF). The researcher then completes the professional portion of the PG-SGA® to include disease, metabolic demand (chart review of lab tests), use of corticosteroids and a nutrition focused physical exam to determine changes in fat stores, muscle stores, and presence of edema.

Discussion

At enrollment

• The current hospital admission nutrition screening tool did not identify any subjects as requiring immediate RDN consult. 36% (N=4) of subjects had an MST score of ≥1 indicating potential for RDN consult.
• 91% (N=10) had a PG-SGA® score of ≥2 indicating critical need for RDN intervention.
• 91% (N=10) had at least one follow-up assessment. Weight loss ranged from 4.9% to 9.9% of bodyweight. While the MST may be able to identify patients at highest nutrition risk as early as possible.

The MST score is derived primarily from weight loss and appetite. While this makes for a simple tool, it does not account for changes in patient function or symptoms beyond week seven which are common in this patient population.

The MST also does not take into account metabolic demand of disease, fever, or corticosteroids which are common in this patient population.

For our subjects, PG-SGA® scores in weeks one through seven were driven primarily by patient identified symptoms, patient identified changes in activities and function, and by the presence of fevers. PG-SGA® scores beyond week seven were driven primarily by professional screen, with fat and muscle loss noted on nutrition focused physical exam being the most prevalent factors.

As we continue to enroll and follow subjects, there will likely be additional nutrition scoring trends identified. We expect that nutrition scoring trends will help identify the highest risk patients with cancer in the most prevalent factors.

Because at Mayo Clinic patients receive AML follow up care in a variety of settings (hospitalized inpatient, hospital based outpatient, and ambulatory) being able to identify the highest risk patients through a screening tool is likely to be most efficient and effective. Finding a tool that is also precise in identifying the specific contributors to nutrition risk will also be valuable in targeting nutrition interventions for this patient population.

References

2. Ottery F. et al. Validation of the malnutrition screening tool as an effective predictor of nutritional risk in oncology patients receiving chemotherapy. Support Care Cancer 2006