A Randomized, Controlled Pilot Study Comparing the Neutropenic Diet to a Non-Neutropenic Diet in the Allogeneic Hematopoietic Stem Cell Transplant Population

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OBJECTIVES

Primary Purpose/Objectives: To determine if there is a difference in the incidence of infection in HSCT patients receiving a neutropenic diet as compared to those receiving a diet without restrictions.

Secondary Purpose/Objective: To assess the nutritional status of patients undergoing HSCT in those receiving a neutropenic diet as compared to those receiving a non-neutropenic diet using the Patient-Generated Subjective Global Assessment (PG-SGA).

BACKGROUND

In the transplant community, debate exists regarding the most appropriate diet for patients undergoing hematopoietic stem cell transplant (HSCT). Recommendations for the use of low-bacterial diets have been based on theoretical concepts of reducing the risk of contracting infections from pathogens found in food sources and historical practices rather than evidence based research. The past 30 years have seen great progress in supportive care for HSCT patients in better anti-infective agents, the use of stem cell stimulating factors, and better knowledge regarding infection prevention. This progress provides us the opportunity research practices that isolate and may inhibit patient recovery such as the use of the neutropenic diet.

SAMPLE

Characteristic	Range	Control (n = 21) $\bar{X}$	Control (n = 21) SD	Experimental (n = 25) $\bar{X}$	Experimental (n = 25) SD
Age (years)	23–62	45	9.4	45	9.2
Characteristic		n		n	
Gender					
Male		13		9	
Female		8		16	
Diagnosis					
Acute myeloid leukemia		11		11	
Acute lymphoblastic leukemia		3		5	
Non-Hodgkin lymphoma		1		1	
Other[a]		6		8	
Preparatory regimen					
Total body irradiation/chemotherapy		13		16	
Chemotherapy alone		8		9	
Donor source					
Matched related donor		6		9	
Matched unrelated donor		9		10	
Matched unrelated donor (bone marrow)		–		1	
Dual umbilical cord blood		6		5	

[a] Other diseases included myeloma, myelodysplastic syndromes, chronic lymphocytic leukemia, acute erythroid leukemia, Hodgkin lymphoma, myelofibrosis, chronic myeloid leukemia, and follicular lymphoma.

BLOOD CULTURE RESULTS

Control Group (Neutropenic Diet)

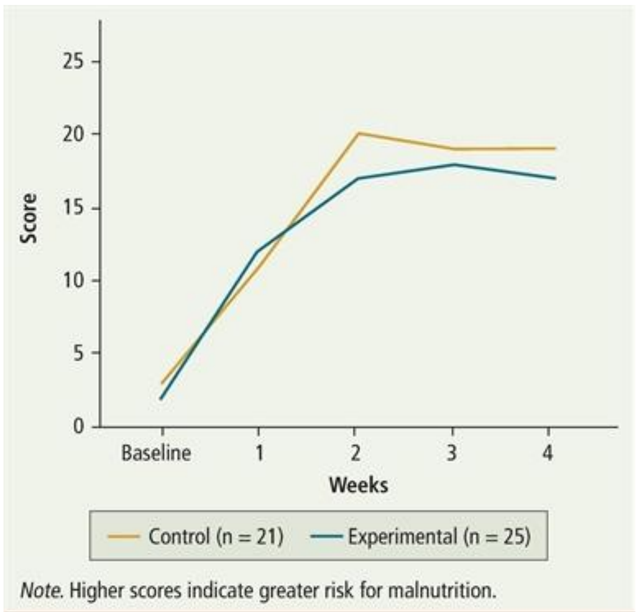
- *Escherichia coli*
- *Enterococcus faecium*
- *Pseudomonas aeruginosa*
- *Viridens streptococcus*

Experimental Group (Regular Diet)

- *Candida glabrata*
- *Escherichia coli*
- *Enterococcus faecium*
- *Gemella* species
- *Staphylococcus* coagulase-negative
- *Viridens streptococcus*

Note. Not all documented bloodstream infections are known to be foodborne pathogens.

PATIENT- GENERATED SUBJECTIVE GLOBAL ASSESSMENT (PG-SGA)



Note. Higher scores indicate greater risk for malnutrition.

SUMMARY

- This pilot study revealed no significant differences in demographic variables between the experimental and control group
- This pilot study revealed no significant difference in percentage of positive blood cultures
  - 6/20 experimental group
  - 7/25 control group
- This pilot study revealed no significant difference in days of TPN between the experimental and control group
- This pilot study revealed no significant difference in lab results between the experimental and control group
- This pilot study suggests altering diet choices for patients undergoing myeloablative allogeneic HSCT does not increase blood stream infection risk
- Larger randomized trials are needed

REFERENCES

Lassiter M., Schneider S.M. (2015). A pilot study comparing the neutropenic diet to a non-neutropenic diet in the allogeneic hematopoietic stem cell transplantation population. *CJON 19:3*, 273-278.

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