Original

Total Nutritional Therapy: A Nutrition Education Program for Physicians

Dan L. Waitzberg, MD, PhD; M.ª I. Correia, MD, PhD; M. Echenique, MD, FACS; L. Ize-Lamache, MD, PhD, FACS; J. Kehr Soto, MD; J. M. Mijares, MD; L. A. Nin Álvarez, MD; J. A. de Paula, MD; S. Rugeles, MD; M. Santillana Cantella, MD, PhD, FACS; P. Savino Lloreda, RD, CNSD and J. M. Escallón, MD, FACS, FRCSC

1 University of São Paulo Medical School, Gastroenterology Department, LIM35, São Paulo, Brazil. 2 Federal University of Minas Gerais and University Hospital, Belo Horizonte, Brazil. 3 University of Puerto Rico Medical School and Hospital Auxilio Mutuo, San Juan. 4 Ibero Americana University and Hospital Angeles del Pedregal, Mexico City. 5 Medical University of Chile and Hospital San Juan de Dios, Santiago, Chile. 6 Anahuae University and Hospital Medica Sur, Mexico City. 7 Sanatorio Casa de Galicia, Montevideo, Uruguay. 8 Hospital Italiano de Buenos Aires, Argentina. 9 Pontificia Universidad Javeriana and San Ignacio University Hospital, Bogotá, Colombia. 10 Universidad Científica del Sur, Lima, Peru. 11 Abbott Laboratories, Venezuela. 12 University of Toronto and Mount Sinai Hospital, Toronto, Canada.

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Abstract

Objective: Almost half of all hospitalized patients are malnourished with low physician awareness or implementation of nutrition support. To address this problem, a 2-day immersion course in clinical nutrition for physicians was developed by the Latin American Federation of Parenteral and Enteral Nutrition (FELANPE) with support from Abbott Laboratories. The goal of Total Nutritional Therapy (TNT) is to help physicians utilize this nutrition knowledge to increase their awareness of malnutrition and implementation of nutritional therapy. Since 1997, over 8,000 physicians have completed the TNT course in 16 Latin American countries.

Research Methods & Procedures: During 1999 and 2000, 675 participants responded to a survey 6 months after having completed the TNT course to determine what impact the course had on the use of nutrition assessment, nutrition support teams, or nutrition consultations in their clinical practice, and if they had participated in any nutrition association or conferences.

Corresponding author: Dan L. Waitzberg, MD, PhD. Associate Professor of Gastroenterology. University of São Paulo Medical School. Director of GANEP - Human Nutrition Group. R. Maestro Cardim 1175. CEP 01323.001. São Paulo - SP, Brazil. Phone: 55 11 32 53 41 72. Fax: 55 11 2897391. E-mail: dan@ganep.com.br


TRATAMIENTO NUTRICIONAL TOTAL: PROGRAMA PARA LA EDUCACIÓN DE LOS MEDICOS EN NUTRICIÓN

Resumen:

Objetivo: Casi la mitad de todos los pacientes hospitalizados se encuentran desnutridos y los médicos tienen muy poco conocimiento o apenas utilizan el soporte nutricional. Para corregir este problema, la Federación Latinoamericana de Nutrición Parenteral y Enteral (FELANPE) ideó un curso introductorio de nutrición clínica para médicos de dos días, con el apoyo de los Laboratorios Abbott. El objetivo del tratamiento nutricional total (TNT) es ayudar al médico a aprovechar sus conocimientos de nutrición para incrementar la conciencia sobre malnutrición y aplicación del tratamiento nutricional. Desde 1997, más de 8.000 médicos han completado el curso TNT en 16 países latinoamericanos.

Métodos y procedimientos experimentales: Durante 1999 y 2000, 675 participantes respondieron, seis meses después de haber terminado el curso TNT, a una encuesta en la que se pretendía averiguar la repercusión que había tenido el curso en el uso de la evaluación nutricional, los equipos de apoyo nutricional o las consultas sobre nutrición en la práctica clínica y si habían participando en alguna asociación o conferencia de nutrición.

Resultados: La mayoría de los médicos que rellenaron la encuesta había aumentado el uso de las herramientas de evaluación nutricional y el tiempo dedicado a este tratamiento; asimismo, había aumentado el número de pacientes que recibieron tratamiento nutricional.

Conclusiones: El curso TNT ha resultado un modelo...
Results: The majority of physicians who completed the survey increased their use of nutrition assessment and time dedicated to nutrition therapy, and increased the number of their patients placed on nutrition therapy.

Conclusions: The TNT course has been shown to be an efficient model of clinical nutrition education for general physicians. The course should be considered as part of the training of medical residents.

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Keywords: Clinical nutrition. Hospital malnutrition. Medical education. Nutritional assessment. Subjective global assessment.

Introduction

Estimates of malnutrition among hospitalized patients at admission range from 20% to 55%. Among patients with normal nutritional status upon admission, approximately 50% may develop mild malnutrition while hospitalized. One study found that no more than 19% of patients’ medical records contained any information about nutritional status, and only 15% of patients were weighed even though a scale was available within 50 meters in 75% of cases. Malnutrition is correlated with higher morbidity, mortality, and health care costs, yet is infrequently addressed. Early nutrition intervention has been shown to reduce complications and to improve outcomes in surgical, pediatric, and trauma patients.

One reason why malnutrition is not addressed is a lack of nutrition education for physicians. In the United States, 98% of medical schools report nutrition as a component of their education, yet most schools do not require a single course on nutrition. In Italy, final-year medical and dietetic students took a clinical nutrition test, with 76% of the dietetic students passing, compared to only 18% of the medical students. In contrast, 77% of medical students who had taken a clinical nutrition curriculum passed. In a study of fluid prescribing practices in Great Britain, only 56% of respondents reported checking fluid balance charts during daily rounds. Less than 50% of these physicians knew the sodium content of 0.9% saline solution or the daily sodium requirement, and 25% were misprescribing saline solution.

Medical schools are beginning to respond to this knowledge gap. Great Britain now has a nutrition curriculum for all medical schools. Both the University of Pennsylvania and the University of Arizona have increased their nutrition course requirements for medical students. The faculty at the University of Pennsylvania consists of dietitians and physicians from several departments. In 1991, 80% of surveyed graduating medical students at the University of Pennsylvania stated that their nutrition education was inadequate, whereas in 1998, only 10% stated that opinion.

Several nutrition experts have also responded to the dearth of nutrition education available for physicians by forming the Intersociety Professional Nutrition Education Consortium (IPNEC). Eight national societies and 3 credentialing bodies are represented in IPNEC. Its main objective is to establish educational standards for fellowship training of physician nutrition specialists (PNS). PNS are usually gastroenterologists, but physicians from any discipline may work towards this designation. These specialists can then train other physicians on how to utilize nutrition assessment and therapy in patient care, an important but neglected area of physician education.

The lack of physicians with nutrition training is especially critical in Latin America. Latin America has approximately 500 million inhabitants (1996 estimate). The largest country, Brazil, has close to 200 million people. The Director General of the Food and Agriculture Organization of the United Nations estimates that 54 million Latin Americans suffer from chronic malnutrition. This is over 10% of the region’s population. In parts of Brazil, child malnutrition is as high as 15%. Therefore, the need for physicians with nutrition knowledge is great. Dietitians are not always available to aid physicians in Latin America and it is crucial for physicians to be able to utilize nutrition assessment and therapy.

The Latin American Federation of Parenteral and Enteral Nutrition (FELANPE) partnered with Abbott Laboratories to develop Total Nutritional Therapy (TNT). TNT is a 2-day, 20-hour course with lectures, workshops, and case studies. The format was inspired by the Advanced Trauma Life Support (ATLS) course. ATLS is a 2-day course developed by the American College of Surgeons for physicians who do not routinely treat victims of trauma. ATLS training has been shown to benefit patients with serious but survivable injuries. Modeled on the successful format of ATLS, TNT seeks to improve physician knowledge of clinical nutrition through a 2-day course and to increase the use of nutritional therapy in clinical practice.

The TNT course was developed for physicians by physicians. It emphasizes small group activities that
promote interaction. It consists of 11 lectures, 5 workshops, 5 case studies, and a 20-chapter manual and is taught over a 2-day period. Table I lists the course content. Members of the FELANPE education board and Abbott Laboratories developed the course materials. The course is taught by 4 instructors and a course director. Instructors are physicians who have successfully completed the course and post-course test. The instructors emphasize the basic principles of the course. The course was piloted and audited in Mexico City, Mexico in April 1997. Through 2002, 317 TNT courses were offered in 16 Latin American countries and 8,214 physicians have completed TNT (table II).

Each course was limited to 32 participants to foster small group interactions and attention. Thirty days prior to each course, TNT course organizers mailed the course study materials, manual, and a pre-test to each participant. The format of the course alternated between lecture, small-group discussions on case studies, and workshops. The workshops provided actual practice with enteral and parenteral devices and procedures. Active participation in workshops and case study discussions was strongly encouraged. At the end of the course, a post-course test was given. Instructors presented diplomas to participants with a score of 70% or higher.

The objectives of this study are to report the results of the surveys completed in 1999 and 2000, 6 months after TNT, to determine the impact of TNT on the awareness and knowledge of clinical nutrition and its impact on physician clinical practice.

### Methods and Materials

Physicians were notified of the course offering by several methods. FELANPE and the nutrition societies of each country in FELANPE mailed invitations to their members. FELANPE advertised the course in its newsletter and in medical journals. Abbott representatives also informed physicians about the course.

During 1999 and 2000, TNT participants were surveyed 6 months after completing the TNT course in order to assess the impact that TNT had had on their medical practice (table III). The survey questions were about the physicians’ routine use of nutrition assessment and nutrition consultations, use of nutrition support teams (NSTs), and membership in parenteral and

<table>
<thead>
<tr>
<th>Chapters</th>
<th>Lectures</th>
<th>Workshops</th>
<th>Case studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Nutritional Therapy</td>
<td>Malnutrition/Consequences</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Cost Benefit of Nutrition Therapy</td>
<td>Malnutrition/Consequences</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Body Composition</td>
<td>Nutrition Screening and Assessment</td>
<td>Nutrition Assessment</td>
<td></td>
</tr>
<tr>
<td>4. Carbohydrates, Proteins, Lipids</td>
<td>Nutrient Needs</td>
<td>Fluid and Nutrient Requirements</td>
<td></td>
</tr>
<tr>
<td>5. Vitamins/Trace Elements</td>
<td>Nutrient Needs</td>
<td>Fluid and Nutrient Requirements</td>
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<tr>
<td>6. Water and Electrolytes</td>
<td>Nutrient Needs</td>
<td>Fluid and Nutrient Requirements</td>
<td></td>
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<tr>
<td>7. Metabolic Response to Stress</td>
<td>Metabolic Response to Stress</td>
<td></td>
<td>Critical Illness/Multiple Trauma</td>
</tr>
<tr>
<td>8. Nutrition in Critical Care</td>
<td>Early Enteral Nutrition Therapy</td>
<td></td>
<td>Colorectal Cancer</td>
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<tr>
<td>9. Cancer</td>
<td></td>
<td></td>
<td>Short Bowel Syndrome</td>
</tr>
<tr>
<td>10. Gastrointestinal Disease</td>
<td></td>
<td></td>
<td>Type 2 Diabetes, Chronic Obstructive Pulmonary Disease</td>
</tr>
<tr>
<td>11. Chronic Disease</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Orders/Assessing Outcomes</td>
<td></td>
<td></td>
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<tr>
<td>13. Enteral Nutrition</td>
<td>Early Enteral Nutrition Therapy</td>
<td></td>
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<tr>
<td>14. Enteral Formulas</td>
<td>Formula Selection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Gastrointestinal Access</td>
<td>Enteral Access</td>
<td>Enteral Access Devices</td>
<td></td>
</tr>
<tr>
<td>16. Enteral Feeding Complications</td>
<td>Preventing Complications</td>
<td>Enteral Feeding Systems</td>
<td></td>
</tr>
<tr>
<td>17. Parenteral Nutrition</td>
<td>Parenteral Nutrition Therapy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. Central Venous Access</td>
<td>Complications of Parenteral Nutrition Therapy</td>
<td>Central Venous Catheters</td>
<td></td>
</tr>
<tr>
<td>19. Parenteral Complications</td>
<td>Complications of Parenteral Nutrition Therapy</td>
<td>Central Venous Catheters</td>
<td></td>
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<tr>
<td>20. Home Nutrition Therapy</td>
<td>Summary: Optimizing Nutrition</td>
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enteral nutrition associations. The physicians were also asked if they had begun NSTs and if they had increased the time dedicated to nutrition therapy since attending the TNT course. These questions were included to aid in determining if the TNT course had had an impact on their clinical practice. The 6-month follow-up surveys were mailed to the 3,025 physicians in Argentina, Brazil, Chile, Colombia, Mexico, and Uruguay who had taken the TNT course during 1999 or 2000. Survey results were compiled in Epi Info, version 6.04 (Centers for Disease Control, Atlanta).

Results

Six hundred seventy five physicians completed the 6-month follow-up surveys in 1999 and 2000. The 6 countries surveyed hosted 70% of the TNT courses offered through 2002 (table II). The response rate was 22% (675/3,025). Twelve of the physicians were from Argentina; 348 were from Brazil; 60 were from Chile; 50 were from Colombia; 129 were from Mexico; and 76 were from Uruguay.

Responses to 8 of the questions are shown in Figure 1. Seventy-nine percent of the physicians reported increasing the time that they dedicated to nutrition therapy in their medical practice and 78% reported including nutrition assessment in their practice after completing the TNT course. Sixty-seven percent increased the percent of patients placed on nutrition therapy. Twenty-nine percent became new parenteral and enteral nutrition society members. Thirty-seven percent reported creating nutrition support teams (NSTs) and 27% joined NSTs after attending the TNT course. Almost half (49%) of the physicians increased NST consultations.

Discussion

The results of this survey completed 6 months after the TNT course illustrate important changes in the clinical practice of physicians. Almost 80% of the physicians increased the time dedicated to nutrition therapy and included nutrition assessment in their clinical practice. More than two-thirds increased the number of patients they placed on nutritional therapy. Many physicians joined a nutrition society or attended a nutrition conference, and their use of nutrition support teams (NSTs) increased. Based on their TNT training, physicians should be more likely to intervene early with nutritional therapy and thereby prevent complications, decrease morbidity, mortality, and reduce health care costs. Early nutrition intervention has demonstrated these benefits in previous studies. The use of NSTs has also been shown to reduce health care costs.

In many hospitals, new NSTs were formed by TNT graduates. One university hospital incorporated the TNT course as part of its medical residency program. The TNT course has also promoted the development of nutritional guidelines and protocols and stimulated research on malnutrition. Most importantly, the survey results indicate that TNT graduates are utilizing their nutrition knowledge in patient care.

Over 8,000 physicians have been trained in 16 Latin American countries since April 1997. The TNT program continues to be offered in many countries and was recently updated (TNT 2.0). TNT webmaster is already available at http://tninfo.net. From the 3,025 surveys originally mailed during 1999 and 2000, 22% of participants responded. This response rate is comparable to other researchers' findings with surveys done with one mailing. Changes in address, difficulties with electronic or postal mail, only one mailing sent, and physicians’ hectic work schedules may be reasons why more physicians did not respond. It is hoped that with a web site, more responses may be obtained for the 6-month follow-up survey, in the future.

Summary

Just as the ATLS course has been successful in reducing mortality from trauma, the TNT course may help to remedy the gap in physician nutrition education. By becoming more aware of nutrition therapies and support teams, physicians may incorporate these modalities into their clinical practice and impact malnutrition among hospitalized patients. Physicians who have completed the TNT course can incorporate what they have learned in their practice and thereby help to reduce malnutrition and its effects.
Table III

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Is there a nutrition support team (NST) in your hospital? □ 1 = Yes; 2 = No
If yes, was it created after you took TNT? □ 1 = Yes; 2 = No
Are you a member of the NST? □ 1 = Yes; 2 = No
If yes, did you become a member after you took TNT? □ 1 = Yes; 2 = No
If not, have you asked the NST for more consultations? □ 1 = Yes; 2 = No
Have you included nutrition assessment routinely in examinations? □ 1 = Yes; 2 = No
Have you increased the number of patients you place on nutrition therapy? □ 1 = Yes; 2 = No
How many patients (on average) do you see on nutrition therapy per day? □
Do you consult your TNT material in your daily practice? □
Are you a member of your country’s Parenteral and Enteral Society? □
If yes, did you become a member after you took TNT? □
After you took TNT, did you attend any nutrition congresses? Which one?
Have you increased the time you spend on nutrition therapy? □
If yes, how much time are you now spending? □
Which one?
How would you rate TNT’s impact on your routine nutritional practice? □
Would you like to receive a newsletter with TNT information? □
Date of TNT course: __ / __ / __ City: ____________________________________________________________________________________________
Street address: __________________________________________________________________________________________________________________
City: __________________________ Zip code: ________________________________________________________
Country: ________________________ State: _______________________________________________________________
Telephone: __________ Fax: __________ E-mail: _______________________________________________________
Additional Comments: _________________________________________________________________________________

References


