GUEST EDITORIAL

Good Nutrition Lowers Health Care Costs

D. C. Hemingway, D.V.M. R.N.C.[1]

Introduction

Many Canadian citizens as well as government officials have known for several years that our medical costs are rising too fast. The first reaction is to believe that more medical services would mean healthier people. We prided ourselves in having one of the highest life expectancies in the world but we have now fallen to 13th place in the world. Money is not buying Canadians better health.

Hospital Costs

In 1987 Dr. Ludwig Auer with the Canadian government published the study *Canadian Hospital Costs and Productivity.*[1] This study points quite forcefully to the need to examine alternative modes of delivery of hospital care to deliver a more cost-effective system. Hospital care accounts for 40% of the total health care costs.[1] During the last 30 years, hospital costs have been rising at 15 percent per year. Only 1.5 percent of this cost is attributable to increased hospital admissions. Higher costs per admission accounts for 13.5 percent of the increased costs.[1]

Historically new technology improves productivity. During the 1950s the increased use of antibiotics shortened the average length of stay (ALOS) in hospitals. During the 1970s new technology for kidney disease and other degenerate diseases has increased the ALOS and costs. In 1970, 5 percent of births were caesarian section births, by 1980, 15 percent were caesarian births and this increases the ALOS and costs. Unfortunately mortality rate for caesarian section is still 3 times higher than for vaginal births.[1] These facts show that we are not delivering effective medical care.

Action Plan

I propose that we as Canadians and governments must improve the nutritional status of Canadians to lower our health care costs. Governments can demonstrate the effectiveness of nutrition by promoting better nutrition for our hospital patients. Governments could recognize nutritional therapy fees under "medicare" and as income tax deductions. This would encourage doctors and patients to use nutrition instead of drugs.

Governments on behalf of the people of Canada must take the initiative to finance studies to show the effectiveness of nutritional therapy and nutrition as a method of disease prevention. Industry cannot finance nutrition research because their shareholders demand profits. Nutrients can not be patented and therefore there is no way to recover costs of the research.

Insurance companies, governments and citizens are the people who pay medical bills and they are the ones who can benefit from lower health care costs. We as health care professionals and concerned citizens must continue to encourage our politicians to take a more active role in health maintenance.

Nutritional Factors

Dr. B. R. Bistrian et al[2] conducted single day surveys at various times in an urban teaching hospital measuring the tricep skin fold, height, weight, serum albumin and hematocrit. The prevalence of protein-calorie malnutrition was 44% or greater for each of these measurements. The results were reproducible at different visits.

The dietary intake was assessed for weekly periods and the protein-calorie intake was compared to the anthropometric measurements. Dr. Bistrian showed that protein-calorie malnutrition occurs commonly in local hospitals. The surgical patient study showed that 50% were suffering from protein-calorie malnutrition. The medical patients studied were more often calorie deficient than the surgical patients. Dr. Bistrian states that the failure to examine the protein-calorie malnutrition and its relationship to various diseases is not consistent with good patient care.

Dr. Bolet[6] compared serum albumin, vitamin A, C and E status of 51 hospital employees and 144 hospital patients with various disease conditions. Some of the hospital employees (control group) had values below the

1. Box 704, Boissevain, Manitoba R0K 0E0.

accepted normal limit but were included in the study as a comparison group. Twenty percent of the patients were deficient in each nutrient studied. This finding of malnutrition is frequent enough to warrant more careful attention by hospital medical staff.

The subgroup of diabetics had fewer deficiencies than other patients.[6] Generally diabetics are more diet conscious and it appears to be effective in reducing malnutrition. Patients with peptic ulcers had the lowest average whole blood level of ascorbic acid (vitamin C). Forty-two percent of the ulcer patients had low ascorbic acid levels. The findings of this study, combined with those of other workers point to a significant frequency of malnutrition in hospital patients.

Average Length of Stay (ALOS)

Smith and Smith[4] report in their study of 17 hospitals that 27 percent of the patients had three or more signs of nutritional deficiency. These patients had a 98% longer average length of stay (ALOS) in hospitals than well nourished patients. The records showed that 57% of these high risk patients did not receive any nutritional evaluation or nutritional support.

Overall, high risk patients who received nutritional evaluation and/or intervention had a 26% shorter ALOS than those who received neither.[4] These improvements in shorter ALOS means large dollar savings and less suffering by the patient.

Malnutrition is Widespread

The following brief excerpts from several studies show that malnutrition is widespread. Most of the studies consider only protein and calorie nutrition because standard tests are inexpensive and readily available. Vitamin and mineral deficiencies can be serious but testing is expensive and standards are not as well established. These studies show that the incidence of malnutrition is increasing. The incidence occurs in all hospitals from children's, suburban and veterans. The studies also show malnutrition increases as the stay in hospital increases.

Unfortunately these statistics show that our hospitals are not a good place to stay very long. There is a "catch 22" situation in most hospitals. The medical staff is not trained to recognize the signs of nutrient deficiencies and do not give direction to the dieticians to make the proper menu additions. The dieticians are not trained to evaluate the patient's needs and diagnose the deficiencies so the result is the patient fails to get the required help. The patient suffers and we all pay the financial costs.

- 31% of 200 consecutive patients from two group family practices were malnourished on admission to Phoenix Community Hospital. *JAMA* 243:1720-2, 1980.
- 65% of 1000 surgical patients assessed at an affluent suburban community hospital in Holyoke, MA were judged to have moderate to severe malnutrition. *J. Parenter. Enter. Nutr.* 1:25 A, 1977.
- 100% of the malnourished patients who received no nutritional support for three weeks in hospital experienced deterioration of their nutritional status. *J. Am. Coll. Nutr.* 4:471-479,1985.
- 75% of well nourished patients who were hospitalized for two weeks or longer experienced declines in their nutritional status. *Am. J. Clin. Nutr.* 32:418-426, 1979.
- 97% of 64 surgery patients admitted to Philadelphia Veteran's Hospital had one or more indicators of protein-calorie malnutrition. *Arch. Surg.* 114:121-125, 1979.
- 37% of the patient charts contained one or more indicators of protein-calorie malnutrition at Boston's Childrens Hospital. *Am. J. Clin. Nutr.* 32:1320-1325, 1979.
- the percent of patients who are at risk for malnutrition at the University Hospital in Seattle, WA has risen from 33% in 1979 to 43% in 1987. These results are based on the study of patients for one day each year in the hospital. *Eighth Ross Round-table on Med. Issue.* Columbus Ohio 1988, pg. 2-8.
- 90% longer average length of stay among general medicine patients who were clearly malnourished at Albert Einstein Med. Center, North Division, Philadelphia. *J. Parenter. Enter. Nutr.* 11:49-51, 1987.
- 75% higher costs for malnourished patients compared with the overall hospital average was reported by a N. Carolina Community Hospital. *J. Am. Diet. Assoc.* 86:1235, 1986.

Nursing Homes

Pinchcofsky-Devin and Kaminski report[3] a study they conducted in two urban nursing

homes with 232 patients. Using biochemical and anthropometric measurements, they found 59 percent of the patients were showing some degree of protein-calorie malnutrition. The patients were graded into mild, moderate and severe malnutrition. Seventeen of the patients had bed sores and were all in the severe malnutrition group.

The Center for Trauma Research calculate that there are 60,000 deaths per year in the USA caused by skin destructive pressure sores. Pressure sores can cost from $2,000.00 to $10,000.00 per patient to treat. Research done by Mulholland et al in 1943 found a correlation between low plasma protein and pressure sores. The magnitude and cost of this problem demands that patients receive regular nutritional assessment and nutritional support to prevent pressure sores.

Alzheimer's Disease

Alzheimer's has become one of the most feared diseases of this century. One of the most exciting recoveries is documented by Tom Warren in his book *Beating Alzheimer's Disease.* The main approach was to remove the toxic substances from his body and environment and provide his body with the nutrients to repair and heal itself. The promising fact about nutritional disease conditions is that when you find a nutrient that will cure the condition, smaller amounts taken regularly can prevent the health problem.

Tom Warren's recovery is like Columbus crossing the Atlantic Ocean, once it had been done others soon tried the same method and succeeded. Our medical care system can save much suffering and large sums of money by studying and promoting some of the methods that Mr. Warren and his doctors used. Alzheimer's disease can have many causes, therefore the recovery of a few patients doesn't mean we have won the battle. It does mean there is hope and there are probably thousands of Alzheimer's patients that can recover as Mr. Warren did.

AIDS - HIV

Doctors, politicians and Canadians are all concerned about AIDS or HIV syndrome. This disease is so expensive that insurance companies are afraid of going bankrupt. This disease is the ultimate test for a weak immune system. I would suggest that most HIV patients should be receiving Dr. Pulse's nutritional therapy program.[7] His program gives the patient many of the known nutrients to strengthen the immune system. During a six month trial 10% of the patients became negative to HIV and 97% improved on a clinical symptom scale. This could save the medical care system millions of dollars.

Mental Illness

Dr. David Hawkins[5] reports that in their outpatient clinic associated with the Brunswick Hospital, the use of nutritional therapy reduced the cost of treating schizophrenic patients by 90%. The patients did so well that they were able to reduce the number of psychiatric treatment sessions from 150 per year to 15 per year. An important benefit from this successful treatment program is that the patients often returned to work and became tax payers instead of tax consumers.

Dr. Abram Hoffer, a Canadian who pioneered the use of nutrition, as used by Dr. Hawkins, found that 90% of his schizophrenic patients recovered if they were put on an optimal nutritional program within one year of becoming ill. Dr. Hoffer considered the patients "recovered" when they were continually living in the community without psychiatric care.

Dr. Hoffer has used nutritional therapy along with some drugs for 40 years to help his schizophrenic patients recover and is a strong advocate of the patient learning about his/her disease. The patient then becomes an active participant in their recovery. Dr. Hoffer has calculated[11] that an unrecovered schizophrenic patient will cost the health care system $2,000,000. during the average 40 years of illness. When you multiply that times the approximate 200,000 schizophrenic patients in Canada the total is about $ 1 billion dollars per year.

Nutrition vs. Drugs

Much of this paper has dealt with hospital costs. We all know that other costs include drugs, doctors' fees, and lost wages. Dr. Lowry in his report *Prescription for Health** states that if nutritional therapy was given for five common conditions, benign prostatic hypertrophy, childhood asthma, cardiovascular disease, osteoarthritis and elevated cholesterol, millions could be saved by Ontario alone.

Assuming that all Ontarians suffering from these five conditions were given nutritional therapy instead of the present drug therapy $230,000,000.00 could be saved per year. This indicates that nutrients are much less expensive than drugs and surgery.

A major factor in cost benefit that may not have been considered in the above calculation is that nutritional therapy tends to cost less as the years proceed whereas drug therapy tends to increase. We all can recall patients or family members who were given one medication for a condition that resulted in "side effects". A month or two later they required a second drug to counteract the side effect of the first. This results in an ever-increasing cost of therapy until we end up in a nursing home on 6 to 12 prescriptions for life.

Generally speaking, the nutrients that will treat a condition will prevent the same condition. Iodine in salt is an example of a nutrient used to prevent a major medical problem. Perhaps some day vitamin C will be added to food to prevent elevated cholesterol levels.[9] No one knows how many millions this could save, lives or dollars.

Dr. Russell Jaffe[10] reports on the use of tryptophan as an effective tranquilizer, sedative, anti-pain and anti-depressant compound. Tryptophan is an amino acid often found with other amino acids as part of the protein molecule. The body is familiar with these compounds and that explains the lack of side effects even when used at high levels over long periods of time. The body recognizes tryptophan as a food nutrient. Tryptophan is also cost effective with the usual dosage costing one tenth (10%) or less of the psychotropic medication.

Education for Prevention

Education is effective in improving the general health of people as was shown by the diabetics in Dr. Bolet's study.[6] Many hospital patients know in advance that they are going to the hospital. Most of them do not enjoy the pain and complications of a long recovery and would be highly motivated to take nutritional supplements if the information was provided.

The previously mentioned information shows us that there is a great deal that can be done in our hospitals to improve health and save dollars. The government through its home economists, dieticians and public health staff can make more effective information available to the public about nutrition that can prevent illness. The list of published studies is so long I will only mention a few examples.

- The *New England Journal of Medicine,* Nov. 13, 1986 reported that studies showed increased risk of squamous-cell carcinoma in people with low serum beta-carotene (vitamin A precursor). The same study reported an association between low levels of serum vitamin E and an increased risk of any type of lung cancer.
- The *Journal of the American Dietetic Association,* Vol. 86:4 states that vitamin C can work in several ways to lower the risk of cancer. Vitamin C is used by the immune system to destroy viruses and bacteria. Vitamin C prevents the production of nitrosamines, a known carcinogen in the intestines. A study in Scotland showed that a group of terminal cancer patients taking vitamin C lived an average of 300 days longer than those not taking vitamin C.
- Arthritis is a complex disease which is a degeneration of several tissues that make a joint. Dr. Rinehart reported in 1938 *Archives of Internal Medicine* that rheumatoid arthritis patients had low vitamin C levels. Dr. Kaufman[12] used niacinamide in the 1940s to help his patients with swollen arthritic joints. Many people find copper helpful for their arthritis. We know that calcium, magnesium and vitamin D are required for healthy bones. Yes, adequate nutrition could save governments and industry millions by preventing arthritis.

Summary and Conclusions

"I have discussed with you a few of the many advances which have been made in nutrition in recent years. You have seen that what patients eat has much to do with their health and with their recovery from ill health. Primary or secondary nutritional disorders produce or complicate all the problems of the sick. I have stressed that we should be concerned with the prevention and with the earlier stages of disease when the disturbances are almost imperceptible and that we should not wait until these disturbances bring tremendous burdens and stark tragedies." (Dr. T. D. Spies in the *J. Am. Med. Assoc,* June 7, 1958)

The above quotation is as applicable today

as when it was written over 30 years ago. Sir Richard Hawkins wrote about curing scurvy "with sower oranges and lemmons" in 1593. Jacques Cartier was shown by the Indians how to treat scurvy in the 1530s. Dr. Klenner wrote about curing polio in 1949 with vitamin C. Many medical professionals still do not use vitamin C for any of their patients today.

It is sad that we learn so slowly, that pride keeps us from accepting the discoveries and teachings of our colleagues. We can not change the past but we can use the information gleaned from the past to change our ways of promoting health today. Tomorrow is our responsibility.

References

1. *Canadian Hospital Costs and Productivity.* 1987 by Canadian Gov't. Publishing Centre, Ottawa.
2. Bistrian BR et al: Prevalence of Malnutrition in General Med. Patients. *JAMA,* Apr. 12, 1976, vol. 235, no. 15.
3. Pinchcofsky-Devin GD, Kaminski MV: Pressure Sores and Nutritional Status. *J. Am. Ger. Soc.* 34:435-440, 1986.
4. Smith P, SmithA: *Superior Nutrition Care Cuts Hospital Costs.* Nutrition Care Management Institute, Chicago.
5. Hawkins DR: The Development of an Integrated Community System for the Effective Treatment of Schizophrenia.
6. Bolet AJ, Owen S: Evaluation of Nutritional Status of Selected Hospitalized Patients. *Am. J. Clin. Nutr.* 26:931-938, 1973.
7. Presented to Texas Health Department, July 23, 1989.
8. Lowy F: Prescription for Health, chapter 10: Report to the Pharmaceutical Inquiry of Ontario, July 1990.
9. Cerrato PL: Coronary Artery Disease and Vitamin C. *RN,* May 1991, 71.
10. Jaffe R: *Health and Nutrition Update* 1991, 6:2,3.
11. Hoffer A: Canadian Schizophrenia Foundation Conference, 1991.
12. Kaufman W: *Common Form of Joint Dysfunction: Its Incidence and Treatment.* Brattleboro, Vermont: E.L. Hildreth and Co., 1949.