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RESEARCH ARTICLE

Terminal Cancer: Finding Hope in Truth

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Abstract

More than 93% of 58 University of Hartford undergraduates of both genders responded affirmatively to the following question: "If you had cancer and had exhausted all conventional curative options, would you want the option to try reasonable, relatively safe, inexpensive-but unconventional and untested-remedies?" We review some such options and recommend that cancer patients not be declared "terminal" before being allowed to embrace such options.

Keywords

Terminal, Cancer, Hope, Truth

Introduction

Death is, arguably, the single most important event in life. Yet it tends to be ignored until ignoring it is not longer possible. Death and dying are not components of the primary or secondary curriculum, and questions on these subjects are absent from standardized tests of academic achievement and aptitude. College electives may focus on death and dying, but, typically, from a distant perspective, rather than on preparing for one's own death. When, eventually, inevitably, death does intrude, it is typically as tragedy, as if death were never appropriate, never welcome. But how many of us really want to live much beyond 100 years? There comes a time in every long life when death is good. We'll be wise to prepare to recognize that time, and to learn, when we reach it, to embrace hospice and palliative care.

Premature death, on the other hand, runs contrary to our survival instinct, and can never be regarded as good. When premature people confront a terminal diagnosis, they cannot help but hope for remission or cure. By definition, however, they are "terminal" because no proven remedy warranting that hope exists. Their instinctive hope is unfounded.

To protect "terminal" patients from false hope, which can lead to physical and financial exploitation, oncologists tend to portray truth as a substitute for hope. From this conventional perspective, "terminal" patients are better served by learning that there is no reason to hope than by being allowed to think that there is. We find this conventional perspective to be paternalistic, isolating, and short-sighted, and we offer a new vision: We are all terminal, and patients are best served by being presented with all relevant information and allowed to freely choose their response to it. From this new vision, hope is always an option.

"But my sharpest memory of those weeks is the helplessness of sitting in a hospital office learning that estrogen receptor-negative breast cancer cells in my sister's body had metastasized to her bones, lungs, and brain. We could make her comfortable, the doctor said. That was it. . . . First, the helplessness grew. Then the anger: Why was hospice the only option she had? Weren't there off-label drugs or clinical trials?" [1].

There may not be drugs or trials, but, for cancer, at least, there are always other options. Some may be unreasonable or dangerous or expensive, and, for these reasons, best ignored. But the list of reasonable, relatively safe, and inexpensive options against disseminated cancer is long, and the combinations of these options almost endless. Shouldn't "terminal" cancer patients have the opportunity to consider these options before being saddled with the harsh "truth" that hope for cure or remission is unrealistic? Justified anger comes from realizing that in conventional settings, "terminal" patients are routinely denied this opportunity.

Methods and Results

"If you had cancer and had exhausted all conven-

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tional curative options, would you want the option to try reasonable, relatively safe, inexpensive - but unconventional and untested-remedies?"

Fifty-eight unselected undergraduates between ages 19 and 28 were surveyed. Thirty females, twenty-three males, and one of unspecified gender answered, "Yes". One male and three females answered, "No". From these results, we suspect that the vast majority of young, healthy, reasonable people want to choose how they will respond to a diagnosis of terminal cancer.

Discussion

No cell can divide; no tumor can grow, in the absence of folic acid or thiamin. And the only source of these vitamins is the diet. This is textbook biochemistry. Folic acid is needed for purine and thymidylic acid synthesis. Thiamin is needed for ribose synthesis. Without purines, thymidylic acid, and ribose, cell division, and tumor growth, is impossible. Diets deficient in these vitamins are common worldwide, as evidenced by the prevalence of diseases of their deficiencies. Similar diets, intentionally constructed, should stop tumors in their tracks. "Terminal" patients can be taught this biochemistry, and it can become their source of realistic hope for cure or remission.

Of course, diets deficient in these essential nutrients will also stop some necessary normal growth. Folic acid deficiency causes megaloblastic anemia, and thiamin deficiency, beriberi. These side effects are common worldwide, and can be tolerated when mild and treated with trace amounts of the missing nutrients when serious. And here in lies the beauty of this treatment, for blood is delivered to normal tissue in greater amounts than it is to tumors [2]. This explains why it's so difficult to get anticancer drugs into cancer cells. By removing nutrients from the diet, and then replacing them in trace amounts, we turn this table to patients' advantage. Blood will carry trace nutrients to normal tissue while starving the tumor [3].

It all makes perfect biochemical sense, but nutrient deficiency has never been tested in a controlled clinical trial. It's reasonable, but uncertain, and may, therefore, fail. In this worst-case scenario, the diets will have served as perfect placebos. They're inexpensive, minimally risky, and require no prescription or approval from FDA or a Human Subjects Committee. Patients can cook them up in their own kitchens: Calories should come mostly from butter, olive oil, and parmesan, romano, or mozzarella cheese, and protein from poached large egg whites (at least 10/day) or turkey breast. To cultivate the compassionate healing attitude, the animals yielding these potentially life-saving foods must be treated humanely. Other foods must be avoided. Vinegar and salt can be used for flavor, but other flavorings should be avoided. Vodka (80 ml/day) may accelerate folic acid and thiamin deficiency. Depletion of these vitamins must be confirmed by regular blood testing. Wine and beer must be avoided along with milk, fruit juices, sugary beverages, coffee, teas, cocoa, chocolate and all candy and pastry, but patients should consume large quantities of water. All vitamins and minerals other than folic acid and thiamin must be taken as supplements. Sugar-free dietary fiber must be consumed on a daily basis.

Adhering to the folate & thiamin-depleted diet might be difficult, but famed oncologist James Holland believed that "people need the possibility of hope", and he had an answer for "terminal" patients who asked if they had a chance: "Yes, but you must work for it, because the treatment won't be easy" [4]. Work, in itself, is beneficial as a distraction from the gloom of "terminal" cancer.

An added feature of the depleted diet is that it deprives tumors of the glucose and insulin they need for growth [5]. Normal cells are well-perfused with blood and well-oxygenated. They readily metabolize dietary fats in place of carbohydrates. But tumors are hypoxic [6]. Since there are no pathways for metabolizing fats in the absence of oxygen, tumors will suffer from the ketogenic diet. The host will attempt to provide glucose by gluconeogenesis, but patients' consumption of alcohol will inhibit this, leaving tumors to wither from malnutrition [7]. The diabetes drug, Metformin, is also know to inhibit gluconeogenesis and might be effective in place of alcohol.

Although the folate & thiamin-depleted, ketogenic diet is untested, it is not without precedent or analogy. Sidney Farber, who discovered the anticancer efficacy of inhibiting folate metabolism with Methotrexate, referred to an acceleration of leukemia with folate supplements and a favorable experience with folate deficiency [8]. Thiamin depletion has been considered for cancer patients for theoretical reasons.

Ketogenic diets have been tried in patients with advanced cancer, but without success [9]. The most likely reason for this failure is production of glucose by the host through gluconeogenesis. Adding alcohol or Metformin to the ketogenic diet should alleviate this problem and enable the diet to work to its potential. Patients and their physicians must beware, however, of potentially life-threatening acute hypoglycemia and tumor lysis syndrome, and be ready to rescue with abundant hydration, and with trace doses of folic acid and/or thiamin and/or glucose.

Because protein synthesis is necessary for cell division, diets lacking one or more essential amino acids should stop cell division, and, consequently, cancer growth. Diets lacking essential amino acids are available for patients with phenylketonuria and maple syrup urine disease.

Animal studies are tempting, but animals aren't

capable of a placebo effect or reporting on quality of life. Human studies are tempting, but it's difficult to find matched "terminal" patients to serve as controls. And what if a human trial failed to demonstrate objective benefit? Then physicians could no longer honestly endorse this reasonable, inexpensive, convenient, and low-risk diet, and "terminal" patients would lose the perfect placebo. The best way forward for this diet is anecdotal. Each patient who adopts it should be encouraged to keep a log. Over time, these logs will say whether or not further objective research is warranted.

After conventional curative therapy has run its full course and failed, the odds of cure or remission are, clearly, remote. Patients should know this truth, but there's a world of difference between "remote" and "zero". By respecting this difference, physicians can give patients and their families and caregivers permission to hope for a miracle while simultaneously preparing for death, and, in this way, enhance quality of life for all involved.

Hope for cure is the most important component of terminal patients' lives even when they "know" such hope is unrealistic. Let's help these patients rephrase their thinking. Hope for cure may be remote, but it's never unrealistic. Physicians can inspire realistic hope by teaching "terminal" patients to understand the folate & thiamin-depleted, alcohol-fortified, ketogenic diet. Perhaps this diet would be better-known, simply, as the Desperation Diet. But there are more sources of hope than this diet.

Reasonable, safe, and inexpensive adjuncts might boost adherence to, and efficacy of, the Desperation Diet, e.g., forest bathing [10] and yoga [11]. New interventions emerge periodically for control of pain and nausea [12,13]. Additional interventions will emerge over time. Copper, for instance, seems more essential to growth of tumor than normal tissue [14]. The drug for depleting body copper is proprietary, but growing food plants hydroponically in copper-free medium should accomplish the same mission with less side-effects and cost.

Finally, there is the issue of semantics. We're all terminal. Reserving the "terminal" appellation for patients with advanced disease adds to their burdens. We should abandon this practice.

Conventional oncologists may offer five criticisms of the Desperation Diet:

1. It raises false hope. To counter this criticism, emphasize to patients that this Diet has not been tested. Although it is reasonable, there is no evidence that it works. Adopting the Desperation Diet would be an experiment, and most experiments fail.
2. It is impractical. Creating a diet that is free of folate or thiamin is difficult in America, but possible, and, in poor nations, rather common. Ketogenic diets are easy to create, and diets deficient in essential amino acids are available for patients with phenylketonuria and maple syrup urine disease.
3. It is too brutal for advanced patients. Cachexia is common in patients with advanced cancer, and it is tempting to think of cachexia as part of the problem. But, in the past, it was tempting to think of fever as part of the problem of infection. Now we tend to think of fever as part of the solution, and we tolerate fever unless it becomes excessive. Like fever, cachexia may be the body's attempt to destroy the cancer. The Desperation Diet would work with cachexia against the cancer.
4. It is unscientific. But science consists of theory and experiment, and the Desperation Diet is based on solid scientific theory.
5. Conventional physicians do not want to endorse a treatment that has not been tested. Physicians should not endorse any treatment that has not been thoroughly tested and approved. We do not ask physicians to endorse the Desperation Diet. We suggest only that physicians make the Diet available to patients in the event that the patients might choose to adopt it on their own.

Conflict of Interest

The authors declare no financial interest in this work. The authors have full control of all data and agree to allow the journal to review it. This work has not been submitted elsewhere and will not be submitted elsewhere until a decision is reached on publication with JFMDP.

Ethical Statement

Our survey was approved by the University of Hartford Human Subjects Committee.

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