Disaster Nursing in a Ubiquitous Society

Care Package for Cancer Patients In Times of Disaster :Series ②

Tips for Eating during a Chemotherapy Period

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The 21st Century Center of Excellence Program
<Cancer Nursing Care Development Project>
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Introduction

This handbook guides cancer patients undergoing or suffering side effects of chemotherapy on how they should react to a disaster, especially how to eat at home or a shelter, and what to prepare in advance. In addition, the handbook provides many tips concerning basic ideas of eating, with tips for eating easier and with more pleasure during the time of chemotherapy, to serve you in your daily life.

1. Meals during chemotherapy

Chemotherapy not only attacks cancer cells, but also impacts other normal cells. Your body therefore becomes exhausted and requires much nutrition. If you must go under chemotherapy for months, it is definitely important that you get sufficient nutrition and maintain your strength.

Meanwhile, you may suffer such adverse effects as nausea, vomiting, changes in taste and smell, diarrhea, constipation, stomatitis, and fatigue. You may eat less and your body may absorb less nutrition from foods due to such side effects.

We suppose that you have various ideas based on your experience for promoting eating in such times. We hope that this handbook will be of help to you as you undergo chemotherapy, regarding how you should eat in your daily life, and at a shelter if you happen to experience a disaster during a chemotherapy period.

2. Meals are very important to you

It is highly important that you eat well during a chemotherapy period. If you can, you will overcome side effects and infections better, and your body will be able to regenerate healthy tissues quicker.

“Eating well” signifies a balanced diet containing all the nutrients your body needs. As with common desired eating habits, you need to eat a variety of foods in a balanced way, to take in different nutrients. Pick foods from each of the following food groups. The tables illustrate the outline of a balanced meal.

3. How can you eat “balanced” meals?

In Japan, “food groups” are laid out to classify all foods by their nutritional properties,
with simple dietetic explanations added. You can eat from these groups in a balanced way, consulting the explanations.

It is easier to eat balanced meals if you eat breakfast, lunch and dinner, each comprising staple foods, a main dish, and side dishes.

Use any of the following three tables that is the most convenient for you.

Food groups stipulated in Japan (Source: Kagawa, Aya (2001). *Shokuhin Seibunhyo*. Kagawa Nutrition University Publishing Division)

**Three Food Groups (Masami Okada, 1952)**

<table>
<thead>
<tr>
<th>Red Group</th>
<th>Yellow Group</th>
<th>Green Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Promotes muscles and blood</td>
<td>Maintains power and temperature</td>
<td>Improves physical condition</td>
</tr>
<tr>
<td>Fish, meat, beans, eggs, milk</td>
<td>Grain, sugar, fats, starches</td>
<td>Dark-green vegetables, seaweeds, pale-green vegetables, mushrooms</td>
</tr>
</tbody>
</table>

**Four Food Groups (Aya Kagawa, 1930)**

<table>
<thead>
<tr>
<th>Group 1</th>
<th>Group 2</th>
<th>Group 3</th>
<th>Group 4</th>
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</thead>
<tbody>
<tr>
<td>Provides good nutrition</td>
<td>Promotes muscles and blood</td>
<td>Improves physical condition</td>
<td>Maintains power and temperature</td>
</tr>
<tr>
<td>Milk, cheese and other dairy products, eggs</td>
<td>Beans, tofu and other bean products, meat, fish and seafood</td>
<td>Fruits, vegetables, potatoes</td>
<td>Grain, sugar, fats</td>
</tr>
</tbody>
</table>
Six Basic Food Groups (developed by the former Ministry of Health and Welfare)

<table>
<thead>
<tr>
<th>Group 1</th>
<th>Group 2</th>
<th>Group 3</th>
<th>Group 4</th>
<th>Group 5</th>
<th>Group 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fish, meat, egg, soybeans,</td>
<td>Milk, dairy products, fish that can be</td>
<td>Dark-green vegetables</td>
<td>Other fruits, vegetables</td>
<td>Rice, bread, noodles, potatoes</td>
<td>Fats (including fatty foods such as mayonnaise and dressing)</td>
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<tr>
<td>soybean products</td>
<td>eaten whole, seaweeds</td>
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</table>

Promotes muscles, bones and blood

Improves physical condition

Supplies energy

In addition to balanced eating, you should eat foods with sufficient calories to maintain your weight. It is especially important to eat protein-rich foods, which will regenerate and repair your skin, body hair, muscles and organs, which are categorized in the Red Group, and Groups 1 and 2 in the above tables. At the same time, drink much fluids to protect your bladder and kidneys. Fluids may be taken in water, tea or many other forms. Refer to samples of fluids on page 7. (Note: Consult your doctor if you have any problems with your kidneys or heart.)

4. Meals before treatment

It is recommended to eat calorie- and/or protein-rich foods before you receive treatment. To be specific, take more dairy products than usual such as milk, yogurt, cheese and cream, or eat eggs. It is also good to add calories by cooking with oil or butter. (Only eat fried or deep-fried foods when you can, because they are harder to digest.)
Caring for your meals helps you maintain physical strength, and sustain the impacts of the cancer and cancer treatment. While you can get sufficient nutrition from normal balanced meals if you are healthy, it becomes more difficult when you are under cancer treatment.

5. Meals during cancer treatment
Cancer therapeutics, including operations, radiotherapy, chemotherapy, hormone therapy and immunotherapy can have a very strong impact on you. Although they are targeted at cancer cells, your healthy cells are also influenced. Healthy cells, such as cells in your hair, mouth or digestive organs, are supposed to develop quickly and divide, and are affected by cancer treatment. This negative impact on healthy cells can lead to unpleasant side effects, thereby disturbing your eating.
At the same time, you may become upset, worried, scared or otherwise emotionally unstable, which also forms a barrier to eating. It is a normal reaction to suffer loss of appetite, nausea or irritability, when you have fear. Once the treatment starts, you will be able to expect what happens to you, and what reaction you show to it. This expectation will help you improve any meal problems caused by the fear.

Cancer side effects vary patient by patient. The occurrence of side effects differs according to which body part you need to have treatment for, what type of treatment will be provided for how long, and how intense the treatment will be.
However, not all cancer patients experience side effects, and most of the effects disappear once the treatment completes. Side effects may also be controlled by drugs.
Talk to your doctor about your treatment and possible side effects.

While you are hospitalized or undergoing treatment, consult your doctor, nurses and/or nutritionists, and ask questions about meals, snacks and foods most suitable for you. They will also tell you how you can address any eating problems. You can also ask about any problems that might also occur after the treatment finishes. Hearing about ways other patients deal with their problems will also help you.
1) What to think when you have no appetite
There are no strict rules or wonder drugs concerning meals and dietetics during cancer treatment.
Some people may have the same appetite and eat as usual, while others may have days when they have no appetite or feel sick just thinking about food.
Below are things you should think when about you have such experience:

・ When you can eat, take sufficient protein and calories. If you can’t eat much, eat light foods many times per day. Protein and calories provide you with strength, prevent corruption of your cells, and regenerate cells affected by cancer treatment.

・ Many people have more appetite in the morning. If this is the case with you, eat more in the morning. Try to eat the largest meal earlier in the day. If you aren't interested in eating, take a liquid meal in the evening such as commercial liquid diet or milkshake.

・ If you feel so sick that you can eat only one or two kinds of foods, continue to eat it (them). You can try eating something else when you feel better. Liquid foods and nutritional supplements also provide some calories and protein that you need.

・ Even if you have days when you cannot eat at all, don’t worry too much about it. Try to do something that helps you feel better, and eat if you feel like it. If the loss of appetite continues for two or three days, consult your doctor.

・ Drink a lot of fluids (e.g., mineral water). Especially drink a lot of fluids on days when you have no appetite. Water is very important for your bodily functions. Your body requires sufficient fluids to keep operating. Adults are recommended to drink six to eight glasses of fluid every day. Carry a water bottle or canteen with you during the day, to help you develop the habit of drinking fluids frequently. Refer to the list of fluids that are easy to take (page 7).
2) What to do when you don’t feel like eating
There may be days when you cannot eat, even though you know that you should. Also, you may have difficulty eating, or pain that keeps you away from eating due to nausea, troubles in your mouth or throat, or other side effects. You may also lose appetite when you feel depressed or tired. Try to divert yourself if you are too depressed to eat. The following are tips on dealing with loss of appetite:

- Eat light meals or snacks when you feel like eating. You don’t have to stick to a regular three-meal habit.
- Eat something nutritious as a snack.
- Try new foods or cooking ideas to give variety to your diet. If you prefer dishes that you are accustomed to, that will be also good.
- If possible, take a little walk before eating. It may make you feel hungry.
- Make small changes to your meals. For example, decorate the table with flowers or candles, or eat somewhere different than usual.

- It is a good idea to eat together with your friends or relatives. If you eat alone, it may help if you turn on a radio or TV.
- Take sufficient time when you eat.
- If you live alone, it is a good idea to make use of a meal catering service. Look for such a service near your home.

3) What to eat while receiving treatment as an outpatient
If you are receiving treatment as an outpatient, mealtimes may come during IV, due to a long waiting time, etc. In such cases, carry something to eat or drink, such as rice balls, snacks, water or bottles of juice. Sugarless candies and gums (which won’t decay your teeth) are also good to carry.
〈Samples of handy snacks〉

Bread, muffins, crackers,  
Popcorn,  
Cookies and cakes containing embryo buds, cereals,  
Cheese, cheese cake,  
Sponge cake,  
Fruit (fresh, canned, dried, sweet-boiled fruit, etc.),  
Ice cream,  
Milkshake,  
Milkshake made with commercial ready-made powder or soybean flour,  
Milk, yogurt,  
Stick vegetables or boiled broccoli,  
Rice balls, sandwiches,  
Commercial snack bars, cookies with balanced nutrition, jellies,  
Boiled egg,  
Japanese egg cookies, wafers,  
Rice crackers
< Samples of clear fluids >

Japanese clear soup, bouillon,
Clear chicken or fish soup,
Carbonated drinks,
Grape juice, other fruit juices,
Fruit-tasting ice without fruit,
Honey, jellies, jelly-type desserts,
Ice candies,
Sports drinks, amino drinks,
Strained citrus juices, lemonade,
Strained vegetable juices,
Tea (green, oolong, barley, black or other types of tea),
Water (boiled and cooled water, mineral water)

< Samples of foods with thick fluid >

Any fruit juices, nectar,
Soups of meat or fish, miso soup,
Butter, cream, oil, margarine,
Coffee, black tea,
Yogurt, iced milk,
Fruit-containing beverages, fruits with syrup,
Honey, jelly, syrup,
Nutritional supplements,
Milk (fat-free, low-fat, non-adjusted or any other type of milk),
Milkshake, custard, pudding,
Bavarian cream, milk jelly, sherbet, ice cream,
Potage, vegetable puree,
Strained cereals,
Various types of Japanese rice porridge, boiled udon
Digestible foods are good for meals during a chemotherapy period. They will help you when your body absorbs less, or has difficulty getting nutrition due to diarrhea or slow digestion during cancer treatment.

For foods to be digestible, boil, steam or simmer them. They become less digestible when roasted, fried, and deep-fried, in this order.

< Samples of digestible foods >

Various types of Japanese rice porridge, boiled udon,
French toast, soft bread,
Medium-boiled egg, chawanmushi (stew of assorted foods),
Steamed egg custard,
Japanese scrambled eggs, slowly-boiled egg, scrambled eggs,
Omelet wrapped with egg, eggdrop soup, pudding,
Boiled or roasted bream, flatfish, sole fish, horse mackerel, cod, tuna,
salmon, oysters, etc.
Gratin, stew, boiled meatballs, steamed chicken,
Meatball soup, boiled hamburger steak, stuffed cabbage,
boiled minced meat,
Food boiled in cream, stew, Bavarian cream, milk, yogurt, cheese,
Ice cream, milk jelly,
Boiled tofu, cold tofu, tofu with Chinese paste, food boiled in miso,
Scrambled tofu, food marinated with drained tofu, natto,
Miso soup, fried tofu, soft-simmered food,
boiled minced meat, mealy potatoes,
mashed potatoes, potato salad, grated yam,
Boiled vegetables, vegetables boiled in soup, roasted and boiled foods,
Boiled foods wrapped with egg, miso soup,
Japanese tea, barley tea, black tea, lactic acid beverages,
Juices, soft beverages, biscuits, plain cookies,
Candies,
Sponge cake, Japanese egg cookies, jelly
6. Meals after treatment
After you finish treatment, your appetite will gradually come back. Try to eat balanced, healthy meals such as those you were eating before the treatment. No scientific studies have been made on meals to prevent the recurrence of cancer, but it is certain that appropriate eating habits help you maintain power, regenerate cells, and lead a more pleasant life.
  - Always eat in a balanced way. Eating a variety of foods realizes balanced meals.
  - Eat fruits and vegetables, to get necessary vitamins, minerals and fiber. However, refrain from too much sweet fruit.
  - Eat foods containing embryo buds, such as brown rice, sprouted rice, breads and cereals containing embryo buds. They supply dietary fiber, minerals and vitamins.
  - Don’t eat too many fat, salt, sugar, alcoholic, smoked or pickled foods. You can reduce salt by drinking low-fat milk, reduce fat by boiling or simmering, or replacing soy sauce with good stock. There are also some things you can do when you eat out, such as not consuming all the soup when you eat ramen, or not putting sugar in your coffee or tea.

If you have had an operation on your stomach or intestines, along with the chemotherapy, consult your doctor, nurses or registered dietitians to develop eating plans best suited for you.

<Tips for eating as you did before the cancer treatment>

  - Fix dishes that you are accustomed to, and are easy to cook.
  - Make a couple of servings, and freeze them in storage, which you can thaw out and eat quickly when you don’t want to cook.
  - Buy ready-made dishes and salads packed for one person at the supermarket, for easier meal preparation.
  - Return to your ordinary ways of eating, such as while watching TV or listening to music.
  - Try to ask your friends and relatives to do grocery shopping and cooking for you.
7. Possible side effects during a chemotherapy period, and related tips for eating
The following pages provide possible side effects during a chemotherapy period, and related tips for eating.

1) Tips for eating when you experience vomiting

• Don’t eat too much at a time, to avoid the sense of being full. Instead of three (or one or two) big meals per day, eat many times, a small amount each time.
• Don’t drink alcohol while you are eating. Drink alcohol at least one hour before or after the meal.
• Eat or drink slowly, and whenever you feel like it.
• Eat cold, smooth foods that are easy to swallow. (e.g., egg custard, chawanmushi, smooth tofu, yogurt, pudding, jelly, ice cream)
• Season foods to your taste.
• Reduce the volume of food you eat, and expand its variety instead.
• Avoid sweets, deep-fried foods, and fatty foods.
• Eat dishes cold or at room temperature, so that you won’t be bothered by the smell.
• Chew well to help digestion.
• If you feel nauseous in the morning, eat cereal, toast, crackers or other dry foods before you get up. (Note that this should be avoided this if you have a cut in your mouth or throat, or when you have little saliva.)
• Drink cold and clear juices that are not artificially sweetened, such as apple or grape juice. You can also drink ginger ale that has gone stale, or non-carbonated soft beverages. Balanced electrolyte drinks and nutritional drinks are good for maintaining your strength.
• Take fluids often.
• Suck ice or refreshing candies (with mint taste, etc.). (Note that candies should be avoided if you have a cut in your mouth or throat.)
• Avoid annoying smells from cooking, cigarettes, perfumes, etc.
• Prepare food for several days cooked and frozen, for times when you don’t want to cook.
2) Tips for eating when you have stomatitis

It is difficult to eat when you have stomatitis or a sore throat. Nutrition is needed to recover the inflammation.

- Citrus fruits, including its juices, and spicy foods are stimulating, and should be avoided.
- It is reported that melons, kiwi fruit and tomatoes can sting.
- Eat your foods at around body temperature.
- Eat soft foods.
- Avoid alcohol and cigarettes.
- Dip foods in some drink before eating. (e.g., dip a cookie in milked tea)
- Try things that seem easy to eat. (e.g., ice candies, pudding, milkshake)
- Suck a sugarless candy or ice cubes.

3) Tips for eating when you have a taste disorder

Chemotherapy may cause changes in the way you taste, due to the disorder of taste bud cells and peripheral nerves, or decreased saliva secretion. The type of taste disorder you may experience varies person by person. Some find that salty tastes have become blunt or feel bitter, while others become too sensitive to sweetness, or sense no taste at all.

- If you sense salty tastes in an unusual way, change the salty seasonings your use such as salt, soy sauce and miso. You can also try soup stock, adding sesame flavor, or eating vinegared foods.
- If you have become too sensitive to sweetness, make dishes saltier than usual, reduce sugar, add acidity, or use more spices, as suitable to your condition.
- If you don’t sense any tastes, season your dishes stronger than usual, or eat vinegared food, soups or fruits more frequently. It may also help to wait until your dishes become cold.
- If you find food bitter, eat a drop or caramel to kill the bitterness. You can also use a lot of soup stock or spices. Use a way that suits your condition.
- If your mouth runs dry, try the following:
Suck on an umeboshi (pickled Japanese plum),
Suck some candy,
Chew some sugarless gum,
Drink fluids,
Gargle with lemon water or boric acid-added water,
Have artificial saliva prescribed, and use it, or
Eat juicy foods that are easy to swallow.

4) Tips for eating when your weight is decreasing
Try preparing dishes that have many calories but in small amounts.
Banana shake
Milk with soybean flour
Ice cream
Eat between meals
Eat what you like, even in small amounts.

5) Tips for eating when you have diarrhea
If you have diarrhea, take fluids frequently to prevent dehydration.
It is recommended to eat soups or other digestive foods, and drink commercial sports drinks or other beverages, to prevent your body from becoming low in sodium and potassium.
Try foods and drinks that seem preferable to you in the tables on pages 7 and 8.

6) Tips for eating when you have constipation
While you are undergoing chemotherapy, peristaltic movements of the intestines are sometimes reduced due to the influence of the treatment on the autonomic nerves. Constipation is also caused by the decreased amount of meals and physical activity, as you lose appetite.
If you have constipation, tell the doctor the conditions of your normal defecation, and ask if the constipation is often caused by the side effects of anticancer drugs you are taking, and if you can be prescribed and use any laxatives. Also confirm with your doctor if you can continue the use of your usual laxative medicine (if any).
For meals, it is reported that foods containing a lot of dietary fiber is good for
constipation. However, such foods are usually less digestive. If you have no appetite but have constipation, eating things that you can (i.e., digestive foods) should be prioritized. The longer excrement stays in the large intestine, the more dry and solid it becomes. Take sufficient fluids, and form a regular defecating habit. Try to get the fluids you need from things you can drink. If you have difficulty drinking, eat juicy foods to get the required fluids.

8. To prepare for a disaster during a chemotherapy period
If you experience a disaster during a chemotherapy period, you should have the same ideas and methods about meals as usual. Based on the above information, prepare for a disaster appropriately.

1) Know about the treatment that you are undergoing
Take note of the drugs used in your chemotherapy, the schedule of your treatment (i.e., frequency and time span), and the drugs you take or apply. Put these notes in your emergency carry bag. You may not be able to access your hospital if a disaster happens, due to the traffic being blocked. You then need to take measures to ensure that your present condition is known to your families and other medical practitioners. You can show your notes to medical practitioners (doctors, nurses and/or nutritionists) to explain the process of treatment and your symptoms. The notes will also help when you ask them for advice on meals.

2) Stock drinks and food
Remember the types of food that you can eat with little difficulty during a chemotherapy period, and stock some of them. It is preferable that the foods can be eaten without any preparation, because lifelines including electricity, water, gas and traffic are likely to worsen. Also stock drinking water, three liters per day and for a minimum three days.
Meals that are supplied at a shelter, and food distributed to evacuees, tend to contain little vegetables and minerals because they usually consist of carbohydrates (e.g., rice balls, bread, noodles), deep-fried foods, pot foods, milk, etc.). If your supply of vitamins decreases due to a lack of fruits and vegetables, you will likely suffer colds and stomatitis. Shortage of minerals can also lead to taste disorders. It is advised to stock canned fruits, vegetable juice, commercial sports drinks, and nutritional drinks. There are also nutritional supplements containing vitamins and minerals, though their effects have not been scientifically proven.
3) Tips for eating at home or at a shelter, according to your symptoms

- If you have nausea or vomiting:
  In times of disaster, toilet conditions may change due to a cut in the water supply, and it could take time before garbage is collected. These often cause bad smells, which are likely to worsen your nausea. Pack garbage and vomit tightly in vinyl bags, and minimize the unpleasant smells.
  Smooth and light foods are preferred when you are nauseous. Fruits are recommended because they can be eaten without cooking when lifelines are down. In particular, apples, oranges, melons, grapes, peaches and tomatoes are easy to eat, and contain lots of fluid. Take them with you if possible, when you evacuate. Also try to get them after a disaster strikes, if they are available.

- If you have stomatitis:
  If you often suffer from stomatitis during chemotherapy, you may be able to eat commercial baby food as a kind of rice porridge. Baby food is safe, less stimulant, soft, and easy to eat. Baby foods are easily available at shelters with infants. If you have bad inflammation that often prevents you from eating, also stock canned thick nutritional supplements.

- If you have a taste disorder:
  In addition to the impact of chemotherapy, a shortage of minerals often triggers taste problems. Try to get minerals from whatever is available (e.g., from milk). Also carry candies and caramels on you, to kill the bitterness.

- If you have diarrhea:
  In addition to the impact of chemotherapy, mental stress from a disaster and unusual life at a shelter may make you more vulnerable to colds and diarrhea.
  Keep your body warm, and get sufficient fluids from soups and commercial sports drinks to prevent dehydration. Eat digestible foods with less dietary fiber to reduce burden on and stimulation to your intestines. You can also eat commercial baby foods as a replacement for rice porridge and liquid foods at a shelter.

- If you have constipation:
  In addition to the impact of chemotherapy, mental stress from a disaster, unusual life at a shelter, and imbalances in supplied foods may make you more liable to suffer constipation. If constipation continues long, be sure to get sufficient fluids. If you can
get bananas and sweet potatoes at a shelter, and if you feel like eating them, add them to your meals.

9. Other tips

<Can I drink alcohol?>
A little alcohol can relax you, and increase your appetite. On the other hand, alcohol may also worsen mouth and other membrane inflammations, react with some drugs and reduce their effects, or may otherwise intensify your side effects. Therefore, you might have to decrease the alcohol you drink, or even completely stay away from it during a chemotherapy period. Be sure to ask a doctor if you can drink beer, wine or other alcoholic beverages.

<Can I take vitamin supplements or nutritional mineral supplements?>
If you eat balanced meals, vitamins and minerals that your body require can be absorbed from what you eat. No diet regimen or planned nutritional intake can ever cure your cancer. Nor can any vitamin supplements and nutritional mineral supplements completely replace therapeutics. Some studies also report that excessive intake of vitamins and minerals is not good for your health. Consult your doctor about these supplements.

<How to handle your food>
You need to be careful to prevent infections, because your immunity decreases during a chemotherapy period. It depends on how small your white blood cell count is, and you don't necessarily need to eat sterilized food, but consult your doctor on your physical condition.
The following points should also be applied to your everyday food preparation:
• Wash your hands well before preparing food.
• Keep dishes and cooking utensils clean.
• Wash fruits and vegetables well if you eat them fresh.
• Cook meat well before eating.
• Select pasteurized milk.
• Cook eggs well before eating.
• If you want to eat raw shellfish, buy those prepared for raw eating, and eat them soon after buying.
• In summer, eat your lunchboxes and snacks in a cold box.
10. Check list of side effects
Check the conditions of your side effects.

Type of treatment:
Weeks from start of treatment:
Treatment period (dates):

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Notes:
Bibliography
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