

IMMUNO-SUPPRESSED AND ONCOLOGY PATIENT PREPARATION FOR TRAVEL

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BACKGROUND

The opportunity for a cancer patient to travel abroad may, for some, be a life affirming event during a dark period in their life

For others, what they hoped to be a time of joy may become a disaster

Although foreign travel is an unrealistic goal for some patients, **appropriate planning** and **proactive management** can allow some patients to make an important journey abroad

BACKGROUND

Primary care physicians are frequently asked to make recommendations to patients before traveling, and the need for such advice is also increasing

It is very important for primary care physicians to be aware of the potential pitfalls facing patients with cancer embarking on foreign travel and to have access to reliable and up-to-date information

OBJECTIVES

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3. Prepare oncology patients for travel by giving appropriate advice

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1. Identify the main risks oncology patients may experience in travel
2. Identify contraindications to travel for oncology patients
3. Prepare oncology patients for travel by giving appropriate advice
4. Help oncology patients prepare medications to keep in bag when traveling

Are all cancer patients considered immunocompromised?

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Based on mechanism and level of immune suppression, cancer patients may be divided into 3 groups:

- ▣ Without significant immunologic compromise
- ▣ With limited immune deficits
- ▣ Severely immunocompromised patients

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Are all cancer patients considered immunocompromised?

- Patients who received their last chemotherapy at least 3 months previously and whose malignancy is in remission
- Bone marrow transplant recipients who are >2 years post-transplant, not on immunosuppressive drugs, and without GVHD
- Patients receiving corticosteroid therapy as follow:
 - Short or long-term daily or alternate-day therapy with <20 mg of prednisone or equivalent
 - Long-term, alternate-day treatment with short-acting preparations
 - Maintenance physiologic doses
 - Steroid inhalers, topical and intra-articular injection of steroids
 - **If >1 month has passed since high-dose steroids have been used**

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Asplenia

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Are all cancer patients considered immunocompromised?

- Active leukemia or lymphoma
- Generalized malignancy
- Aplastic anemia
- Graft-versus-host disease
- Current or recent radiation therapy
- Bone marrow transplant recipients within 2 years of transplantation
- Persons whose transplants occurred >2 years ago but who are still taking immunosuppressive drugs
- Medications

Are all cancer patients considered immunocompromised?

- Medications
 - Cancer chemotherapeutic agents
 - High-dose corticosteroids (a dose of either >2 mg/kg of body weight or ≥ 20 mg/day of prednisone or equivalent in persons who weigh >10 kg, when administered for ≥ 2 weeks, is sufficiently immunosuppressive)
 - Immunosuppressive drugs

THE PRE-TRAVEL PREPARATION

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The appointment with the physician should be taken **4 to 6 weeks** before traveling, for assessment, advices and prevention, and to obtain **letter approving travel**

- Particular assessment before traveling
- Some basic steps
- In-flight risks
- Travel-related diseases
- Immunization

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Particular assessment before traveling

A multidisciplinary assessment as to whether the patient is actually well enough to undertake the journey is essential

- Patient physical capabilities (stability and severity of symptoms, degree to which the immune system is compromised, recent and ongoing treatments, without forgetting pre-existing co morbidities)
- Mode of travel
- Arduousness and stages of the journey
- Chosen destination
- Previous immunization

→ identification of potential risks oncology patient may experience in travel, anticipatory planning and prevention

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THE PRE-TRAVEL PREPARATION

Some Basic Steps

Traveling with cancer will require some basic steps to ensure comfort and safety

1. Destination

Avoid places where there is no access to good medical care and where the risk of infection is high

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Some Basic Steps

Traveling with cancer will require some basic steps to ensure comfort and safety

1. Destination

Avoid places where there is no access to good medical care and where the risk of infection is high

2. Travel companion

Traveling with a companion is a good option. If not, consider a medical alert bracelet (information on diagnosis, numbers to call)

THE PRE-TRAVEL PREPARATION

Some Basic Steps

3. Medical documentation

Get general letter from physician (diagnosis, treatment plan, any medical instruction), as well as copy of most recent lab results...

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Some Basic Steps

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Get general letter from physician (diagnosis, treatment plan, any medical instruction), as well as copy of most recent lab results...

4. Medical care at destination

Ask for medical care at destination.

Bring physician number and contact

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Some Basic Steps

5. Special travel needs

If there is any special travel need, check with the airline before traveling

Early check-in or boarding, special equipment as wheelchair, preselected seat, supplemental oxygen, assistance to the gate...

THE PRE-TRAVEL PREPARATION

Some Basic Steps

5. Special travel needs

If there is any special travel need, check with the airline before traveling

Early check-in or boarding, special equipment as wheelchair, preselected seat, supplemental oxygen, assistance to the gate...

6. Medical devices and equipments

Carry written verification

Show this information to personal when passing through security metal detector...

THE PRE-TRAVEL PREPARATION

Some Basic Steps

7. Health insurance

Check with the insurance company for coverage information, and ask for travel health insurance if necessary

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Some Basic Steps

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8. Medications

When traveling, it is important to manage medications appropriately

THE PRE-TRAVEL PREPARATION

Some Basic Steps

8. Medications

Considerations to minimize potential problems:

- Carry all ongoing medications: primary and side-effects medications (N/V, diarrhea, constipation, mucositis, pain, neuropathy, anemia, neutropenia, corticosteroid, allergic reaction, fever, infections...)
- Chemoprophylaxis and self-treatment during travel
- Keep medication in original container, in hand bag or cool one if necessary
- Narcotics and injectable medications require a letter of explanation from physician
- Take recent prescription including generic and brand names
- No specific adjustment for cancer treatment

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Some Basic Steps

9. Patient on chemotherapy

If patient has recently completed, is currently undergoing, or due to start treatments, it may be necessary to advise a delay to the planned journey

CBC is mandatory before traveling and during trip

Imminent travel may be acceptable if chemotherapy for solid tumors or Hodgkin Lymphoma

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In-flight risks

Flying is one of the safest modes of transportation, and problems specifically related to a patient's cancer are rare

Several environmental and physiologic stresses may be encountered in modern commercial aircraft:

- Lowered barometric pressure and partial pressure of oxygen, causing a fall in blood oxygen saturation
- Expansion of gases in body cavities
- Low humidity
- Sustained periods of postural immobility

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In-flight risks

Flying abroad must be carefully considered if any of the following apply to cancer patient:

- Oxygen dependant, dyspnea, history or risk of pneumothorax
- Anemia (Hb < 8g/dl)
- History of thromboembolism
- Within 10 days of receiving bowel surgery or colonoscopy
- Within 2-4 weeks of chest surgery
- Up to 6 weeks following cranial surgery
- At risk of developing cerebral edema
- Medical devices with pneumatic components, such as urinary catheters or feeding tubes affected by gaz expansion. To prevent introduction of air, all feeding and infusion tubes must be capped off during the ascent and descent phases of flight

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In-flight risks

The 2 main risks for cancer patient during flight are:

- Deep venous thrombosis
- Lymphedema

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In-flight risks

Deep venous thrombosis

Patients with cancer are highly prothrombotic and prolonged period of immobility represent an increased risk

Drinking plenty of non-alcoholic drinks, taking a short walk every 1-2 hours, performing isometric leg exercises regularly

No specific guidelines for thromboprophylaxis in cancer patients during flights

Patient considered at a greater risk should be considered for prophylactic low molecular weight heparin

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In-flight risks

Lymphedema

Sufferers of lymphedema may find their condition is exacerbated by air travel as a result of prolonged inactivity

Restrictive clothing and shoes should be avoided as well as rings and wristwatches on the affected limb

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In-flight risks

Lymphedema

The patient should avoid carrying heavy bags

Special care should be taken to avoid sunburn and insect bites

It may be considered necessary for the patient to travel with a supply of antibiotics in the event of infection

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Travel-related diseases

- Travelers' diarrhea (TD)
- Malaria
- Sunburn

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Travel-related diseases

Travelers' diarrhea (TD)

Travelers often are advised to “*Boil it, cook it, peel it, or forget it*”, data on the effectiveness of dietary precautions in preventing TD are inconclusive

High-risk traveler may benefit from **drug prophylaxis**

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Travel-related diseases

Travelers' diarrhea (TD)

Drugs prophylaxis:

- Bismuth subsalicylate (BSS)
- Probiotics
- Antibiotic prophylaxis

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Travel-related diseases

Travelers' diarrhea (TD)

Bismuth subsalicylate (BSS)

- BSS provides a rate of protection of about 60% against TD
- Should be avoided by travelers with aspirin allergy, renal insufficiency, and by those taking anticoagulants.
- Studies have not established the safety of BSS use for period > 3 weeks

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Travel-related diseases

Travelers' diarrhea (TD)

Probiotics

- Are a more natural approach to prophylaxis of TD
- More studies are needed to confirm efficacy and to determine the optimal dosing

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Travel-related diseases

Travelers' diarrhea (TD)

Antibiotics prophylaxis

- Not recommended by the CDC even for high-risk travelers (drug-resistant organisms, false sense of security)
- Option for IC travelers
- Fluoroquinolones = Most effective antibiotics for prophylaxis and treatment of bacterial TD
- Antibiotic prophylaxis should only be taken for a 3 weeks period

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Travel-related diseases

Travelers' diarrhea (TD)

Antibiotics prophylaxis

- A nonabsorbable antibiotic, Rifaximin, is being investigated for its potential use in TD prophylaxis. In the only study published to date, Rifaximin reduced the risk for TD in travelers to Mexico by 77%

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Travel-related diseases

Malaria

When travel destinations are in malaria-endemic areas, IC travelers should be prescribed appropriate drugs for malaria chemoprophylaxis and receive counseling about avoidance of mosquito bites, the same as for immunocompetent travelers

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Travel-related diseases

Malaria

Special concerns for IC travelers include :

- Drug-drug interactions
- The underlying medical condition will predispose the IC traveler to more serious disease from malaria

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Travel-related diseases

Sunburn

Same patients may be more sensitive to the direct effects of the sun due to chemotherapy regimens, radiation therapy, and lymphedema

High-factor sun block (SPF 15 or higher) is recommended as is the wearing of cotton clothing

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Immunizations

The traveler's immune status is particularly relevant to the administration of travel-related immunizations

Overall considerations for vaccine recommendations are the same for IC travelers as for others

The consequences of not administering an indicated vaccine may be more severe

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Immunizations

Severely immunocompromised travelers

Live attenuated vaccines should be avoided because of the theoretical risk that the vaccine agent may cause serious systemic disease

They should only receive **inactivated vaccines** as indicated for healthy travelers

Frequently, the **immune response** of IC persons to these vaccines is not as good as that of normal persons; higher doses or frequent boosters may be required, although even with these modifications, the immune response may be suboptimal

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Immunizations

With limited immune deficits

Are generally not considered immune-suppressed for the purposes of vaccination and should receive vaccinations as recommended for other travelers with both live and inactivated vaccines according to the usual schedules

No information on possible decreased vaccine efficacy or increased adverse events with administration of live vaccines

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Immunizations

Yellow fever vaccine

Immunization against yellow fever is required by certain countries for entry, according to the WHO regulations

YF vaccine virus poses a theoretical risk of encephalitis to those with severe immune-suppression, and such persons should not receive the vaccine

If travel to an YF-endemic zone is necessary and immunization not performed, traveler should be advised of the risk, instructed in methods to avoid mosquito bites, and supplied with **vaccination waiver letter**

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Immunizations

Household contacts

Household contact of severely IC traveler may be given live-virus vaccines, but should not be given the LAIV (oral live attenuated influenza vaccine) and the OPV

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Immunizations

Passive immune-prophylaxis

Passive immune-prophylaxis with immune globulin is a good option for IC traveler because vaccine may not be effective in such persons, may be contraindicated, and the disease may be very severe

It may be indicated for IC travelers, as soon as possible after exposure

And for short term protection of those planning high-risk travel)

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Immunizations

Passive immune-prophylaxis

Immune-globulin preparations:

- Measle
- Hepatitis A, B
- Varicella Zoster
- Tetanus
- Human Rabies...

→ **Lower rates of complications and infections**

Key Points to Remember

- ❑ Immunocompromised travelers have increased susceptibility to the risks encountered in travel (deep venous thrombosis, lymphedema, travelers' diarrhea, malaria, sunburn, vaccine-preventable diseases...)
- ❑ The pre-travel assessment can determine whether the cancer patient is able to travel abroad, should delay his journey, and change the destination...
- ❑ IC travelers should carry all ongoing medications: primary and side-effects medications, as well as chemoprophylaxis and self-treatment during travel
- ❑ Narcotics and injectable medications require a letter of explanation from physician
- ❑ Patient considered at a greater risk for DVT should be considered for prophylactic low molecular weight heparin
- ❑ Prophylactic antibiotic (fluoroquinolones) for travelers' diarrhea may be considered for cancer patients for up to 3 weeks (not recommended by the CDC)
- ❑ The immune response of IC persons to vaccines is suboptimal. Passive immune-prophylaxis may be an option



THANK YOU