ITRACONAZOLE

A MORE EFFECTIVE ANTIFUNGAL PROPHYLAXIS?

Maggie Hoyle, RN
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With the routine use of fluconazole for antifungal prophylaxis, invasive candidiasis is well controlled in the stem cell transplant and other neutropenic patient populations. However, fluconazole has no useful clinical activity against aspergillosis, which has increased in prevalence and is now the leading cause of infectious death in many institutions, including Fred Hutchinson Cancer Research Center. The recent availability of an intravenous form of itraconazole and a better absorbed oral solution has led to the development of a protocol comparing itraconazole with fluconazole for the prevention of Aspergillus infections in the allogeneic stem cell transplant population.

Aspergillus is one of the most common airborne molds, frequently found in fireproofing, building material, and soil. Infection is frequently initiated by inhalation of spores, usually to the lung and sinuses. It can disseminate to the central nervous system and other internal organs. Invasive aspergillosis primarily affects severely immunocompromised patients, particularly those with prolonged neutropenia and those receiving chemotherapy or high dose corticosteroids. The onset of Aspergillus infection after BMT or stem cell transplant occurs in a bimodal distribution, the first median of infection at day 16 and the second at day 96 post BMT [Wald, 1997]. The primary risk factor for the second peak is continuing immunosuppression with corticosteroids, which are usually given for chronic graft versus host disease (GVHD). Of that population, the incidence of aspergillosis from day 75 to day 180 is as high as 8%. One year survival rate for BMT patients with invasive aspergillosis is estimated at less than 10% [van Burik, 1999].

Based on these risk factors, this protocol was designed to compare fluconazole with itraconazole for a duration of 120 days. Patients continuing on corticosteroids will continue to receive their antifungal study drug for four weeks after completing corticosteroids, up to day 180 post transplant. Adult allogeneic patients are consented prior to their transplant and randomized to one of the two study arms. A total of 578 patients will need to be enrolled to obtain statistically sound efficacy data. Due to significant differences in dosing formulations, blinding was not an option. Fluconazole is given at 400mg po daily in its customary tablet form, as per our usual standard practice. Itraconazole is dispensed in an oral solution and dosed by adjusted weight, 2.5mg/kg, three times daily. During periods of mucositis and gastrointestinal intolerance, usually during the initial transplant period, intravenous forms of fluconazole (400mg IV daily) and itraconazole (a loading dose of 200mg twice daily followed by 200mg daily) are given. If a patient develops a breakthrough proven or probable fungal infection and requires a switch to amphotericin B (or an amphotericin lipid formulation), the prophylactic study drug will be suspended and restarted on a case-by-case basis. Plasma levels

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Greetings from your President! Boy this year has gone by fast! If you thought that your Board took the Holidays off you would be mistaken. We are in the middle of the yearend blitz, much like at work: evaluating our goals from 2000, creating the vision (and corresponding budgets) for 2001. What a job this is! (Much more fun than at work!)

I would like to take a little bit of time to give you a sneak preview of the things we are working on for this next year. Sitting down is optional, it is very exciting.

**Education**

Having nearly mastered the CEU offering issue for the meetings, they are looking for greater challenges: teleconferencing or alternative meeting locations (away from the downtown area), linkages with more schools of nursing, structuring the time for more business in the meetings. How will we balance educational need with offers of industry support?

**Research**

Who will chair this committee? Margot will prepare the budget. They have active members perhaps someone will step forward. Will we have another Space Needle dinner program? What types of research will they fund next year? The small and large grants will continue as they have for the last two years.

**Government Relations**

The hot line (e-mail) network is established, they are posting informative, timely updates on the website. The mechanism for urgent calls to action is in place! You can expect that this committee will be active as we change over the Presidency - nationally, not PSONS!

**Website/Newsletter**

Expansion of service for the website. Will we be able to communicate as committees, register for programs, have live chats? More pictures of activities and members? Will this surpass our award-winning newsletter as the communication tool of choice for the membership? (When can our newsletter compete for the ONS award again?)

**Symposium**

How will they possibly be able to outdo last year? I can’t say much, top secret and all, but I will tell you that the committee is very excited, the focus is on lymphoma and the McCorkle Lecturer is...

**Cooperative**

Next courses are planned. They will be at Highline and Swedish. Will the group become more of an active partner with the UW to provide the chemotherapy course? Will they pursue the ONS Chemotherapy Certification or create their own template?

**Membership**

How to keep this committee of one going? Linkages to the website for dues and membership updates? Are we meeting the needs of the membership?

**Nominations**

How to continue to offer the membership strong lists of candidates? Shall this group work with the membership committee in helping to identify people for committee involvement? (Many of our committees are one volunteer).

**Other issues, challenges, opportunities facing the chapter:**

- Expect to see some offering(s) for a Presentation Skills Workshop next year; we are making great progress in planning thanks to the gift from the Transplant Consortium.
- How to partner with other organizations such as schools of nursing, Cancer Lifeline, ACS.
- Better accounting systems for our committee’s use of secretarial support.
- And lastly, who in the world is going to fill Judy’s shoes as our Treasurer after 4 years of service?

Please make an effort to thank your Board for their hard work this year. It is a big job and a lot of fun. Mostly it’s a lot of fun because of who you are working with. I can hardly wait to see how this all turns out. Please stay tuned.
Continued from page 1

are monitored approximately every 21 days.

We started enrolling patients in March of 1999 and have now enrolled 240 patients. Some nursing challenges have occurred with managing the itraconazole administration for patients. One nursing consideration is a significant number of drug interactions, some potentially lethal. Itraconazole interferes with a pathway of metabolism (“the cytochrome P-450”), resulting in increased plasma concentrations of drugs that are metabolized by that pathway. Concomitant use of astemizole, cisapride, pimozide, or quinidine could result in serious cardiovascular events, including QT prolongation, torsades de pointes, ventricular tachycardia, and cardiac arrest. Additional drugs that may interact with itraconazole include antiarrhythmics (digoxin, quinidine), anti-convulsants (carbamazepine, dilantin), calcium blockers, cyclosporine, tacrolimus, midazolam, triazolam, sulfonylureas, warfarin, and rifampin. Levels of these drugs, as available, should be monitored.

An unanticipated nursing challenge involves the administration of the oral solution.

We know that the solution, while better absorbed than capsules, is best absorbed on an empty stomach. Most patients have described the taste as being similar to a child’s cough syrup, and many have found it difficult to take, especially in the presence of any gastrointestinal challenges (particularly gut GVHD). We now recommend that patients chase their itraconazole doses with clear liquids or, if necessary, small snacks (e.g., crackers), and have found that levels continue to be therapeutic. Additionally, patients are permitted to continue their itraconazole in the intravenous formulation for a longer duration or to restart it if necessary.

Another challenge has been the administration of the intravenous formulation of the itraconazole. When starting the study, the intravenous formulation had been through Phase I and II studies. The formulation has now been approved by the FDA (marketed as “Sporanox”) for treatment of aspergillus and is increasingly seen in clinical use.

The formulation is hydrophobic and requires careful reconstituting by pharmacists and delivery by nurses. If the drug is mixed with too much or too little saline, it will precipitate into a clear gel. Ortho Biotech supplies a package insert which details a specific administration involving flushing through a provided stopcock and filter. Post flushing into the bag and reuse of tubing (frequently methods of standard monitoring of levels with adjustments as necessary). We also evaluated busulfan interaction and clearance for patients concomitantly receiving itraconazole and found that itraconazole does interact with busulfan. Liver, renal and GI toxicities, drug interactions (particularly with cyclosporine), and incidence of GVHD are being studied. At the 50% interim analysis (estimated to occur in late spring of 2001), mortality and breakthrough fungal infections will be compared. The difference in rates will be considered at that time, but it is anticipated that statistical significance for efficacy will not be available until the final analysis.

References


The fear of infection for a neutropenic patient is real. The precautions we teach the families and patients should be logical and research based whenever possible. The cancer experience is frightening and isolating especially during intensive treatment phases. Unwarranted restrictions add to the patient’s and family’s stress. However, patients and families should understand the precautions and restrictions that can assist in preventing infections and exposure to potential infections. The first principle to teach the patient and family is that the patient is at risk for infection and may experience neutropenic fevers because of immunosuppression and internal processes, not necessarily because of patient or caregiver error. Only when this first principle is understood can the restrictions be reviewed. The patient and caregiver need to understand the difference between what they can or cannot control. They also need to understand the difference between external and internal causes of infection. Unfortunately oncology healthcare professionals are familiar with the tragedy of a patient dying from an infection after their cancer was cured. The longer a patient is neutropenic the more at risk they are for developing an infectious complication. Serious infections continue to be a major source of morbidity and mortality in the immunocompromised population.

This issue includes articles that touch on the following topics: a) experimental treatment for aspergillosis; b) preventing aspergillosis; c) respiratory syncytial virus; d) food borne illness; and e) vascular access device blood stream infections.

The main strategy we can teach our patients and families is handwashing. Patient precautions seem to be an area of controversy. At what point are precautions isolating and unnecessary rather than prudent? For example, the food precautions have been liberalized over the course of the last decade. Patients may have fruits and vegetables with certain rules in mind. Below is a list of other recommendations we communicate to the neutropenic patients we serve:

- Avoid handling fresh flowers and plants
- Avoid ill family members and healthcare workers
- Avoid partners who have or are suspected to have sexually transmitted disease, condoms are not a sufficient barrier
- Follow food safety guidelines
- Again, handwashing is the main strategy
- Avoid crowds

Other recommendations are more controversial within the greater Seattle area as well as nationally. Local institutions frequently vary in their recommendations. A source of unresolved controversy is the use of masks. We teach our patients to use a mask as a signal to another of an active infection. We do not use masks as a precautionary measure. This is an area of potential confusion for patients. Why is it one way at one institution and another way in another? The role of consistent, logical and reasoned information in patient education cannot be underestimated in promoting compliance in the areas we all agree are essential for patient’s safety. We build trust by explaining the logic and research which leads us to a particular restriction. We lose trust with our clients each time we contradict one another. Why should a patient believe part of story if we as professionals do not present consistent information. It appears to the patient that our knowledge is fractured and imperfect. If we speak with a consistent voice we are collectively more effective. If we as healthcare professionals do not send consistent messages to those whom we serve, how can we expect compliance?

As professionals the work we have before us is clear. We need to develop more consistent neutropenic precautions. Is there a role for ONS to assist in this process? For example, might our organization begin by developing consistent central line care and neutropenic precautions that could serve as national models?

Heartfelt thanks to you, Ann, for pulling these thought-provoking articles together for us. –GW
# Voriconazole: An Investigational Antifungal

**Erika Obrietan**  
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Invasive aspergillosis is a devastating infection that is becoming more common as we develop increasingly immunosuppressive therapies for cancer patients. Aspergillosis primarily affects patients with neutropenia, including those undergoing cytotoxic chemotherapy, bone marrow and organ transplant patients, patients needing long-term corticosteroid therapy, and patients with acquired immune deficiency syndrome. The most common site of infection is the lungs, although sinus infection and CNS infection is not uncommon. Aspergillosis has proved to be a difficult disease to treat; it is often refractory to current therapies and has a particularly high mortality rate in allogeneic bone marrow transplant patients. There are currently few efficacious medications for the treatment of invasive fungal infections; options are limited to amphotericin B preparations and itraconazole. Research is under way in an effort to develop new systemic antifungal agents, which will effectively treat this growing problem.

In 1997 Fred Hutchinson Cancer Research Center began enrolling patients in a randomized comparative study of two antifungal medications, amphotericin B, the gold standard for treating invasive fungal infections, and a new investigational drug, voriconazole. Sponsored by Pfizer, Inc., the makers of voriconazole, the goal of this study is to evaluate the safety, efficacy, and toleration of voriconazole in treating invasive aspergillosis. It is also designed to compare voriconazole to conventional amphotericin B in the treatment of immunocompromised patients with aspergillosis. This is an international, multicenter study; in Canada and the United States the recruitment goal is 284 patients at over 60 centers.

Eligible patients are randomly assigned to receive either standard amphotericin B (not liposomal formulations) or voriconazole. Initial treatment with either drug lasts up to 16 weeks; for patients who are assigned to the voriconazole study arm, the treatment period may be extended for several more weeks or even months if the patient is responding well to the drug. Patients on study are required to undergo frequent clinical examinations, eye exams, blood and urine testing, and X-ray or CT scans to monitor the safety of the drugs and to evaluate the efficacy of treatment.

Eligible patients must be 12 years of age and have a diagnosis of either definite or probable aspergillosis and one of the following underlying medical conditions: allogeneic or autologous stem cell or bone marrow transplant; hematological malignancy or myelodysplastic syndrome; solid organ transplant; HIV infection or AIDS; or high-dose, prolonged corticosteroid therapy. While this sounds relatively straightforward, a diagnosis of aspergillosis can be difficult to obtain; patients often need to begin antifungal treatment without a definitive diagnosis, which may then exclude them from participating in the study.

Several exclusion criteria apply, and patients are ineligible if they have a diagnosis of chronic invasive aspergillosis (present for more than 4 weeks before study entry), or if they have received more than four doses of systemic antifungal therapy in the 2 weeks prior to study entry. Patients with a concomitant diagnosis of CMV pneumonia are also excluded, as are patients with certain abnormalities of liver function tests or renal insufficiencies. Patients may not receive other investigational drugs during the treatment period, with the exception of experimental chemotherapeutic agents, antiretrovirals, and therapies to treat AIDS-related opportunistic infections.

Most of us are familiar with amphotericin B therapy and administration. Commonly referred to by nurses as “shake and bake” or “amphoterrible,” its side effects and toxicities are well documented. Amphotericin B is known for its nephrotoxicity and often has to be administered with hydrating fluids to prevent renal insufficiency or failure. Pre-medications such as dipyridamole, acetaminophen, meperidine, and hydrocortisone are often necessary to prevent infusion-related reactions. Chills, fever, nausea, vomiting, hypotension, anemia, and hypokalemia are all potential toxicities associated with amphotericin.

In contrast, voriconazole has many fewer reported side effects and toxicities. While not all the data have been collected and analyzed, we are aware of the most common side effects. Some patients have visual disturbances, experienced as a brightness of vision or a blurred vision. This is transient and reversible, usually lasting only a short period of time (an hour or less) after an intravenous infusion of voriconazole, and no long-term side effects have been reported. Elevated liver function tests have also been observed in patients, along with some skin reactions typical for azole antifungal agents.

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Voriconazole: Promising Antifungal Treatment

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Hypoglycemia has also been observed in a small number of patients. Voriconazole does not require the premedications or hydration that are commonly required with ampho B. An additional benefit is that voriconazole is available in either IV formulation or in an oral formulation (capsule) which is well tolerated.

To date Fred Hutchinson has enrolled 30 patients in this trial, one of the largest enrollment sites in North America. Fourteen have received ampho and sixteen have received voriconazole. This study is one of several that Pfizer has conducted worldwide in an effort to evaluate the safety and efficacy of voriconazole in treating a variety of fungal pathogens and in varying patient populations. As of October, 2000, a total of 2049 patients have been treated with voriconazole. Pfizer expects to start submitting safety and efficacy data for Federal Drug Administration approval in the near future.

For patients not eligible for the randomized trial, voriconazole in now also available on a compassionate or emergency use basis. The objective of this study is to provide voriconazole for patients who are either intolerant of standard antifungal therapy or who have an invasive mycosis which is refractory to currently available treatments.

To be eligible for this protocol, patients will have a definite invasive fungal infection that has shown progression after seven days of pertinent antifungal treatment, as evidenced by deterioration in the patient’s clinical status or diagnostic imaging. Patients may also qualify if they have an invasive fungal infection and have demonstrated a history of intolerance to other antifungal therapy. This would include severe or life-threatening symptoms related to antifungal administration, such as temperature spikes above 40°c, intractable nausea and vomiting, bronchospasm, or those who evidence a significant deterioration in renal function while receiving another antifungal agent. Patients who are not eligible include those with severely elevated liver function tests at baseline, those with a life expectancy of less than 72 hours, and patients with a history of hypersensitivity to azole antifungals. Subjects may not enroll in this protocol if they qualify for the randomized trial. As this protocol is for emergency use, there is no limitation on receiving concomitant experimental therapies.

There is much research currently on the prevention, detection, and treatment of fungal infections in immunocompromised patients. With the incidence of invasive fungal infections increasing worldwide, voriconazole will provide one more option in the treatment of these life-threatening diseases.
Protective Diet Guidelines for the Immunosuppressed Patient

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Over the last decade, the incidence of food borne illness has remained steady as reported by the Center for Disease Control and Prevention (CDC), the FDA and other governmental agencies (Grover & Tong, 2000). This may be due to the degree of under reporting of food borne illness as well as the difficulty in diagnosing those illnesses caused by food borne organisms. It is recognized that many more types of organisms and parasites (i.e., Listeria monocytogenes, Campylobacter jejuni, E. coli 0157:H7, Vibrio spp., and Cyclospora cayetanensis) are now associated with food borne illness than were known even a decade ago (Archer & Kessler, 1993; DuPont, 1992; Palau & Kemmerly, 1997). In addition to the organisms typically associated with food borne disease is the potential infection risk from exposure to fungal organisms commonly found in foods as well as in naturopathic substances (Aker & Lenssen, 2000; Loudon, Coke, Burnie, Shaw, Oppenheim, & Morris, 1996; Oliver, Van Vorhis, Boeckh, Mattson, & Bowden, 1996; Wingard, 1994).

Populations reported at increased susceptibility to food borne illness are infants and children, the elderly, pregnant women, the chronically ill, and those with cancer and weakened immune systems including the hematopoietic stem cell transplant (HSCT) recipient (Aker & Lenssen, 2000; Cabelof, 1994; Lauthrennoo & Schumacher, 1990; Piner, Schuchat, Swaminathan, & the Listeria Study Group, 1992; Schuchat, Deaver, Wenger, & the Listeria Study Group, 1992; Speilberger, Stock, & Larson, 1993). The CDC advocates that diets for immunosuppressed persons should be modified to decrease the risk of exposure to food borne infections from not only bacterial organisms, but also yeast, molds, viruses, and parasites (Dykewicz, Kaplan, & Jaffe, 1999). Additionally immunosuppressed persons also need food safety education so that food is not contaminated during purchasing, storage, preparation and consumption (Lenssen & Aker, in press; Ollinger-Snyder & Matthews, 1996).

Low microbial diets, which can be referred to as sterile, low bacteria or low microbial diets, vary widely and often severely restrict, without documented evidence of risk, many of the foods (e.g., dairy products and raw fruits and vegetables) preferred and well tolerated by hematopoietic stem cell transplant (HSCT) recipients and other immunosuppressed cancer patients (Aker & Cheney, 1983; Moe, 1990; Moe, 1991; Wingard, 1994). Smith and Besser described institutional practices related to dietary restrictions for patients with neutropenia to determine whether restrictions are used and when they are implemented and discontinued (Smith & Besser, 2000). HSCT patients were excluded from this study. Smith’s study described that in the institutions surveyed, 78% placed neutropenic patients on some type of restricted diet. Eighty-three percent restricted the diet only when patients were neutropenic rather than throughout the duration of the chemotherapy regimen. In this study the most commonly restricted foods were raw fruits and vegetables (92%), raw vegetables (95%), and raw eggs (74%). The authors concluded that the role of diet in the development of infec-

**Table 1**

-- FHCRC Immunosuppressed (IMM) Patient Diet Guidelines – Foods Not Allowed

- Raw or unpasteurized milk & milk products including cheese & yogurt
- Raw or undercooked meats, fish, poultry, shellfish, eggs, hot dogs, bacon, tofu
- Lox and other cold smoked fish
- Aged cheeses (i.e., sharp cheddar, brie, blue, camembert, Roquefort, etc.)
- Farmers cheese; feta cheese; Mexican-style cheese (containing chili peppers)
- Cheese-based salad dressings requiring refrigeration prior to opening, not shelf-stable (i.e., blue cheese)
- Unwashed raw vegetables & fruits.
- All raw vegetable sprouts (alfalfa, broccoli, mung bean, all others)
- Unpasteurized commercial fruit & vegetable juices
- Raw or non-heat treated honey
- All miso products; tempe’ (tempeh’); mate’ tea
- Unpasteurized beer (microbrews and other beers not cold-filtered)
- Raw uncooked brewers yeast

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Protective Diet Guidelines: Some Food Borne Disease Organisms Can Incubate Up to 30 Days

monocytogenes is an example of a food borne disease organism found in a wide variety of foods including processed meats and fish, milk and dairy products, and raw vegetables (Farber & Peterkin, 1991; Piner, Schuchat, Swaminathan, & the Listeria Study Group, 1992; Schuchat, Deaver, Wenger, & the Listeria Study Group, 1992). Foods can be contaminated after processing, such as in the case of soft cheeses and the cold cuts sold at a deli. Persons at increased risk for infection can become infected after eating food contaminated with only a few Listeria organisms. There are a number of case reports of Listeria monocytogenes in the HSCT transplant population, but none of these infections could be linked directly to a specific food (Helenglass, Talbot, Jameson, & Powles, 1989; Long, Leyland, & Milligan, 1993; Want, Lacey, Ward, & Buckingham, 1993; Zomas et al, 1994). The incubation periods for many food borne illness organisms is lengthy (e.g., up to 30 days for Listeria monocytogenes) making it difficult to connect illness with a specific food (Long, Leyland, & Milligan, 1993). These same studies reported diagnosing Listeria infections in both autologous and allogeneic marrow transplant patients in the ambulatory care setting some of whom were beyond six months posttransplant (Long, Leyland, & Milligan, 1993). In the long-term HSCT survivor high dose immunosuppressive therapy is used to treat chronic post-transplant complications and this treatment frequently extends beyond the first or second year after the transplant. This illustrates that HSCT patients are at risk for food-borne infections in the home setting and outside the early period typically associated with immunosuppression. Similar types of food borne infections have also been reported with greater frequency in other cancer patients populations (Anaissie & Kontoyiannis, Kartajian et al., 1992; Louthrenoo & Schumacher, 1990; Schuchat, Deaver, Wenger, & the Listeria Study Group, 1992; Spielberger, Stock, & Larson, 1993).

These trends suggest that immunosuppressed patients, regardless of their environment, may best be counseled to follow a low risk diet. In 1994, the Fred Hutchinson Cancer Research Center (FHCRC) developed the Immunosuppressed Patient (IMM) diet (Table 1) that is followed by all HSCT recipients and medical oncology patients regardless of setting - hospital and ambulatory clinic (Aker & Lenssen, 2000). The IMM diet is structured (Table 2) to protect patients from the major high-risk food sources commonly implicated in microbial food borne illness (Aker & Lenssen, 2000; Dykewicz, Kaplan, & Jaffe, 1999; Lenssen & Aker, in press; Moe, 1990). The IMM diet also restricts foods that may contain fungal, mold and yeast organisms (e.g., aged cheeses and fermented foods such as

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miso, tempe’, mate’ tea) (Kusminsky, Dictar, Arbuino, Zylberman, & Avalos, 1996). Fungal infections occur at increased frequency in HSCT recipients posttransplant and are difficult to treat as compared to bacterial infections (Oliver, Van Voorhis, Boeckh, Mattson, & Bowden, 1996; Wingard, 1994). Yet the IMM diet includes many foods, such as raw washed fruits and vegetables, typically eliminated from other typically-used low bacteria diets (Smith & Besser, 2000). In studies conducted at FHCRC, organisms routinely found on washed (washed under running water) raw fruits and vegetables do not appear to be common sources of infection in the HSCT patient (Aker, unpublished data, 2000; Aker & Lenssen, 2000). The FHCRC medical and clinical staff felt it essential that patients consume a nutritious diet selected from a wide range of food choices to allow for the great variation in individual and ethnic lifestyles. The diet was also structured to encourage eating in patients prone to poor oral intake. More liberal food choices also accommodated the medical recommendation regarding how long patients are advised to follow the IMM diet. Patients follow the diet for a minimum of three months posttransplant (autologous, chemotherapy only) and during continued immunosuppressive treatment (i.e., cyclosporine, prednisone, tacrolimus [FK506]), such as in the case of the allogeneic HSCT patient (Aker & Lenssen, 2000).

Prior to the conditioning therapy and transplant, patients and caregivers are introduced to the IMM diet and general food safety issues (i.e., food selection, preparation and storage, eating safely in restaurants, etc.) via a weekly one-hour class. The 1990’s saw an increasing incidence of microbial food borne illness (i.e., 1993 Jack-in-the-Box restaurant E. coli 0157:H7 outbreak) frequently resulting in food recalls impacting Washington State and the Seattle area. The Center subsequently developed a food safety monitoring program to address food safety issues and food recalls that could potentially impact the HSCT patients and caregivers. The main source of information regarding food recalls and outbreaks impacting the Seattle area is the Internet and the excellent list-serves FSNet-L (Food Safety Network) and Safetyalerts.com which are screened daily (Table 3). When a recall occurs, additional information is gathered from the local and national government websites in addition to contacting the food company. A memo describing the food recall is then distributed to all patients/caregivers and medical and clinical staff. Patients and caregivers are encouraged to screen FoodNet-L and Safetyalerts.com daily for potential food recalls that may impact them.

Table 3

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<th>Internet Sources of Food Safety and Food Recall Information</th>
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<td><strong>PRIMAR Y FOOD SAFETY AND FOOD RECALL INFORMATION</strong></td>
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<td>Safetyalerts address (to subscribe free) <a href="http://www.safetyalerts.com/">http://www.safetyalerts.com/</a></td>
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<td>FSNet-L is also available and archived at: <a href="http://www.exnet.iastate.edu/pages/families/fs/news.html">http://www.exnet.iastate.edu/pages/families/fs/news.html</a></td>
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<td><strong>OTHER INTERNET FOOD SAFETY SITES</strong></td>
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<td>Centers for Disease Control and Prevention (CDC): <a href="http://www.cdc.gov">http://www.cdc.gov</a></td>
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<td>National Food Safety Database: <a href="http://www.foodsafety.gov">http://www.foodsafety.gov</a></td>
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<td>Fight Bac! Partnership for Food Safety Education: <a href="http://www.fightbac.org">http://www.fightbac.org</a></td>
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<td>Government Food Safety Information: <a href="http://www.foodsafety.gov">http://www.foodsafety.gov</a></td>
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<td>Canadian Food Inspection Agency: <a href="http://www.cfia-acia.agr.ca">http://www.cfia-acia.agr.ca</a></td>
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caregivers appreciate receiving these memos as they are frequently unaware of local food recalls given their limited exposure to media resources. The memos enable the medical staff to better address patients and caregivers questions. The program has also helped educate staff regarding high-risk foods and food borne illness.

References
Aker SN (2000). Unpublished data

Key Food Safety Steps

**CLEAN**
- Always wash your hands with hot, soapy water before and after handling food.
- Keep kitchen, dishes and utensils clean.
- Clean up kitchen surfaces with a clean cloth or paper towel.
- Always serve food on clean plates using clean utensils.

**SEPARATE**
- Keep raw meat, poultry and seafood away from fruits and vegetables so juices will not cross-contaminate foods. Always place cooked food on a clean plate.

**COOK**
- Use a meat thermometer and cook foods thoroughly to safe temperatures.
  (Roast beef to 145oF for medium rare; whole poultry to 180oF; poultry breasts to 170oF; stuffing, ground poultry, and reheating leftovers to 165oF; pork and ground beef and other grounds meats to 160oF. To test fish for doneness, make sure it is opaque and flaky. Cook eggs until the yolk and white are firm. If using eggs in recipes, cook to an internal temperature of at least 160oF)
- Keep hot foods hot and cold foods cold. Place hot cooked foods in chafing dishes, crock pots and warming trays to keep them at 140oF or warmer. Place cold foods over bowls of ice to keep them cold.

**CHILL**
- Do not let foods sit at room temperature for more than 2 hours. Promptly refrigerate and store all leftovers in shallow containers. Most cooked dishes can keep for up to 3-4 days in the refrigerator. Reheat thoroughly to 165oF or until food is hot and steaming.
- When shopping, select refrigerated and frozen items last. Make the grocery store your last stop before going home.
- If you have a long distance to travel from the grocery store, consider taking a cooler and ice packs in your car to transport perishable products. If a cooler is not practical, place perishable foods near the cars air conditioning vents.

*Source: Fight BAC Food Safety Program.*
PSONS Profile

Deborah Hodges

Deborah Hodges works for herself these days, something she says she has always wanted to do. Her entrepreneurial spirit, her determination, her self-discipline, and her passion have allowed her to create a position where she can honestly say that the most exciting job she has ever had is the one she has now.

Deborah arrived in the northwest at the start of her college years, coming from an academic family in Iowa. She attended the University of Washington School of Nursing, and started out as an Ob/Gyn nurse, working in infectious disease research at the University of Washington. Her transition to oncology came via a variety of research posts over the years, including lipid, Interleukin-2 and monoclonal antibody research. It was the monoclonal antibody work at the Swedish Tumor Institute that finally led her into oncology, and back to graduate school.

Following graduate school, Deborah landed at Evergreen, where she served as the Oncology CNS for seven years. She also served as manager of the oncology program for one year before making the transition to Swedish Medical Center as their oncology clinical nurse specialist. From this position she began to make her plans to becoming independent.

Her husband Walter developed Guillain-Barre' syndrome the same year she started at Swedish, and she was able to work from home in order to assist with his recovery. It was during that time that the two of them took stock of their priorities. They considered how they would accomplish what they wanted in life.

The solution that Deborah chose was to develop an independent consulting business. Walter had always been self-employed (he's a photographer). He was able to provide both the model and the encouragement. For Deborah it would mean blazing a path, trying something new and different. For the two of them it would mean more time together. Deborah developed a plan and set a deadline. When the deadline came, she leaped.

The majority of her current work is with outpatient departments within healthcare organizations. She provides guidance in streamlining day-to-day flow, creating documentation tools, developing policies and procedures, and coordinating staff education. She helps organizations prepare for JCAHO surveys. She works with pharmaceutical companies providing educational offerings related to core oncology knowledge and as well as new clinical and pharmaceutical developments. For the last two years she has provided a workshop in Alaska for oncology nurses, updating their knowledge and providing clinical training.

She finds that her work is well appreciated. Her position as an outsider allows her greater freedom and an important position of neutrality in discussions that can be intensely political. The health care climate at the current time makes it desirable for organizations to contract with an independent consultant for a short period of time. Someone who can quickly complete specialized projects or lend a new perspective. Deborah likes the flexibility of her new work, as well as the opportunity to meet people, travel, and observe how organizations function. She likes working in a variety of environments, and thinking outside the box.

Deborah balances the intensity of work with avid engagement in outside activities. She states that she has always been able to walk out the door and leave work behind. In her new role she leaves the work behind by traveling with her husband. Several times a year they take vacations and go fly-fishing or explore different regional cuisine and cooking. She's hoping that the latter interest will eventually lead to trips overseas, but for now the travel has been limited to the North American continent. At home she and Walter leave work behind and spending time with Jetta, their Australian shepherd. While Jetta was originally a part of Walter's rehabilitation process, she now has a variety of her own jobs to do, and lots of energy that needs to be expended. One of Jetta's jobs is to keep both Deborah and Walter physically active. Jetta takes her job very seriously.

Since Deborah's early years in nursing were focused in the world of medical research, nursing organizations played a minimal role in her career development at that time. But when she entered the world of oncology nursing and returned to graduate school, Deborah came to be a strong participant and leader within PSONS. She identifies PSONS and ONS as critical to establishing standards in nursing and maintaining a professional network. She taught the chemotherapy course or portions thereof, both for PSONS, Swedish and Evergreen. She describes the excitement of being a part of the ONEC in its development, where she continues to lecture regularly representing several organizations. She notes that this project has served to decrease the fragmentation that was occurring within PSONS, and has served to build our community of oncology nursing in the Puget Sound area. Deborah ran for the office of President-elect of PSONS last year. While she lost the election, she continues to be very involved with PSONS, both with the ONEC and as a member of the committee developing a conference on presentation skills for nurses in the Puget Sound area to be offered next year.

True to form, when asked where she wants her career to go next, she says “I want it to take me somewhere I’ve never been. I can hardly wait to see what’s around the next corner.”
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Call for Posters to Share at Symposium 2001!

It’s time again for you to share your new ideas and innovative work!

What you ask? The planning committee of the 2001 Symposium are hoping to include more posters then ever. Last year was very successful with 9 posters showing great research projects. The ONS Fall Institutes of Learning speaker Tim Porter-O’Grady emphasized the need for nurses to communicate and share their work as we are all so busy. Who has time to reinvent what others have solved? This is our desire at the next Symposium.

Posters can be education based research, a Quality Assurance Project or a new program to share. The purpose, rules and easy application Process is available on our Website. For personal questions please feel free to contact Sandy Wells in Yakima at 509-575-8092 or e-mail to Sandy.Wells@yvmh.org. We look to you sharing your great project!
Simple Strategies to Reduce Catheter-Related Bloodstream Infections

Low-Tech Methods in a High-Tech World

Carol Zukerman, RN, BSN, CIC
Swedish Medical Center
Department of Epidemiology

Intravascular devices have become indispensable in the treatment of oncology patients. However, use of intravascular devices places patients at increased risk for catheter-related blood stream infections (CR BSI) (1). Catheter-related BSIs are associated with increased morbidity, mortality and increased medical costs. The estimated attributable cost per central line-associated BSI is $9,661 - $34,508 (2,3,). Oncology patients often have CVCs for long term treatment. The catheter hub is frequently manipulated to infuse intravenous fluids, medications, blood products, and parenteral nutrition, and for blood draws. Catheter hubs will become colonized during manipulations if breaks in aseptic technique occur. Colonization of the hub with water-borne gram-negative bacteria during bathing or self-administered intravenous infusions has been reported (5). Biofilm studies of needleless devices and CVCs have demonstrated the presence of organisms in the internal lumen of devices and CVCs that could result in BSIs during CVC manipulation (6). Insertion site colonization and subsequent infection of CVCs can occur if meticulous aseptic technique is not maintained. Reported risk of infection varies depending on the type of long term device (non-tunneled, tunneled, totally implanted).

Simple well-established strategies to prevent infections are easily overlooked in today’s high tech world. Strategies such as handwashing, meticulous care of intravenous devices and adherence to aseptic technique with each manipulation of devices will prevent infections (7). Care of tunneled CVCs must also include protection of the hub connection from exposure to tap water (8). Supplies for changing dressings, maintaining lines, and administering infusions must be stored in a manner to prevent contamination. Education of patients and their caregivers is necessary to assure that patients and their caregivers continue to apply infection control strategies when they are discharged. Ongoing assessment of patient and caregiver ability to care for their CVC should occur. Each time a healthcare professional accesses a line or does a dressing change they are demonstrating to the patient and caregiver how to care for their line. When healthcare professionals wash their hands and follow infection prevention procedures, patients and families learn the importance of these simple steps to reduce the occurrence of catheter related blood stream infections.

References

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8. Zukerman, C., Shelton, W., Siegel, M., Corey, L., O’Quin, T., Madison, J. Reducing bacteremia rates among marrow transplant patients by covering the tunneled central venous catheter and cap connection during bathing. Poster presentation at the 27th Annual Educational Conference and International Meeting for the Association for Professionals in Infection Control and Epidemiology, Minneapolis, MN, June 2000.

Oncology Nurses’ War on Cancer Videotape Available

America’s Oncology Nurses: Fighting in the Front Lines in the War on Cancer, is a videotape produced jointly by U.S. Oncology and ONS. The video is a powerful representation of how oncology nursing contributes in a very special way to quality cancer care.

This video might be useful for many purposes, such as recruiting nurses into the oncology specialty and conveying our ideas to legislators. The PSONS Chapter has received a copy of this, please contact Martha Purrier if you are interested in using it.
Join Us!

Resolve now to become more active in PSONS and Volunteer to Serve Your Profession and Your Colleagues as an Officer!

In accordance with our new standing rules, nominations are being sought to serve PSONS not only as executive officers, but also as chairs of the standing committees. This year the following positions are sought:

- President-Elect
- Treasurer

And the chair of the

- Research Committee
- Symposium Committee
- Nominating Committee

Individuals interested must be in good standing with PSONS and submit a biographical sketch, consent to serve, and goals for the office if elected. The standing rules of PSONS, including descriptions of the positions open, are available on the web at http://www.psons.org. A nomination form is also available at that site. This form must be returned by January 1 to Karen Brandstrom, 11755 Greenwood Avenue N #202, Seattle, WA 98133.

Those interested or seeking further information should contact: Karen Brandstrom at 206-363-2522 (h) 206-368-1451 (w) or kbrandst@nhwsea.org

You may also contact any current officer or committee chairperson.
Respiratory Syncytial Virus – A Serious Threat

Terri Cunningham, RN, MN
Oncology Clinical Nurse Specialist
Northwest Hospital

The most commonly experienced infection in developed countries today is acute respiratory illness caused by a respiratory virus. Viral respiratory infections are not only common; they also cause an extraordinary amount of morbidity. They are the most important contributor to loss of time from work and school and are a major predisposing cause of otitis media, sinusitis, and acute bacterial pneumonia. While the impact of respiratory viruses is significant among healthy persons, they are a major contributor to severe disease, hospitalization, and death among very young children, the elderly, persons with underlying lung disease, and the immunocompromised (Couch, England, & Whimbey, 1997). A respiratory virus that is increasingly recognized as an important pathogen among the immunocompromised is respiratory syncytial virus (RSV). Immunocompromised patients particularly at risk for serious respiratory illness due to RSV are hematopoietic stem cell transplant (HSCT) recipients (Ghosh, et al., 2000).

RSV infection among HSCT recipients usually occurs during community outbreaks, typically following a seasonal fall-winter pattern. Patients present with an upper respiratory illness (URI) which frequently progresses to a fatal viral pneumonia. The frequency of progression of (URI) has been reported to be higher among patients who are pre-engraftment (70-80%) than patients who are post-engraftment (25-40%) (Ghosh, et al., 2000). Once pneumonia develops, the prognosis for recovery is unfavorable. The mortality of untreated RSV pneumonia is over 80%. With prompt and aggressive treatment overall mortality remains high at 60% (Ghosh, et al., 2000).

The impact of RSV infection among HSCT recipients is significant and strategies have been implemented in an attempt to decrease the incidence and improve the outcome of this infection. Stringent infection control measures have been effective in decreasing the incidence and preventing the spread of RSV URI (Garcia, et al., 1997). Infection control measures include prompt identification and isolation of RSV-infected patients, screening visitors and health care staff for respiratory symptoms, restricting symptomatic visitors and staff from entering patient care areas, and the donning of masks, gowns, and gloves by anyone entering an infected patient’s room. Some centers restrict the visitation of all children under the age of 12 years. Careful handwashing, as always, is essential.

The antiviral agent available to treat RSV pneumonia is ribavirin, which is administered as an aerosol over two hours three times per day. When this treatment is initiated at the time that patients’ have developed pneumonia, mortality remains high (60%). The question then is whether treating earlier is better. Currently, a randomized clinical trial is being conducted to determine if administering Ribavirin early (as soon as an upper respiratory infection with RSV is indentified) will prevent progression of RSV URI to RSV pneumonia.

The role of nursing in both treatment and infection control strategies to effect the impact of RSV in HSCT recipients is key. The efforts of the clinical research nurse in coordinating and implementing the clinical trial is essential in the success and integrity of the study. The role of the nurse directly caring for the patient is also vital to the success of the study. Ribavirin requires special handling; scavenging tents are placed over the patient’s bed to contain the aerosolized drug and staff utilize per-

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PSONS Election News

Outgoing Officer
Judy Updegraf Shares Highlights of Service

In our on-going series of conversations with outgoing officers we turn to Judy Updegraf. Judy has been the treasurer of PSONS for the past four years.

GW: What's been the best moment in being treasurer for PSONS?

JU: I don’t know. Every quarter when I’m able to balance the books and get the report out to ONS is a wonderful moment. One of the most satisfying parts to doing this is that the budget has increased by almost 2 1/2 times since I started. Where I sit it has been obvious that this has really gone to benefit the membership. I have had the privilege of watching PSONS go from a small-time organization to a very professional chapter, on a league with other professional nursing organizations.

GW: What has been the worst or most difficult time, and what got you through this?

JU: Again, getting the quarterly report completed is a always a struggle. There is a lot of documentation required, the accounts must balance, people have to have all their paperwork in. And then I have to complete the paperwork, all in a timely fashion. My husband has been a big help (he’s an accountant) and we have kept all the records on Excel and Quickken, which is also an advantage. But I think the biggest challenge is to keep the checkbooks balanced and the documentation in place.

GW: Thinking back to four years ago, how has the job of treasurer compared with your expectations?

JU: I think it was probably more work than I’d anticipated. But luckily I was able to accommodate it because of the slow growth. I had time to get familiar with the job before it grew.

GW: What does it take to do the job of treasurer?

JU: One definitely needs to have computer skills, good organizational skills, and the time to do it. There is a ton of paperwork, and one needs to keep everything organized and up to date.

GW: It sounds like this is not a job that can be set aside of a couple of weeks and then get caught up on, but rather requires consistent work. How much time would you estimate you spend each week?

JU: Each quarter is different, depending on the tasks. [Can you describe some of the key busy areas of the year – say membership renewals, symposium and workshops, annual reports?] I would say it takes at least 4 to 8 hours a week, though it clearly varies. You definitively have to keep up with things. I think that the first quarter is the busiest. I have to do the quarterly report, the annual report and the budget in addition to symposium and membership renewals.

GW: How can one prepare to do your job?

JU: I don’t know that there is anything specific that one can do to prepare. But it does help to have some time to orient to the job. I will certainly be open to working with the new treasurer for a quarter to help them.

GW: I know there has been some discussion that it might be valuable to have a preparatory time for persons in offices other than the president. How does this fit with your experience as treasurer?

JU: I would certainly agree that a mentorship would be helpful.

GW: This is obviously a large task. What’s kept you going?

JU: Being a part of the board has been really satisfying to me, watching the organization keep growing. It’s a great way to be involved. I have enjoyed being able to have a say in what is happening.

GW: What will you take from this? How has this helped you in your career, your outside life, or in your plans for the future?

JU: I think it’s been kind of my last hurrah – I’m hoping to retire after next year and not do any work. I’ve always done some kind of volunteer thing – since forever. PSONS has meant so much to my professional career, and doing this work has been very satisfying.

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References


ACS Extends Deadline for Lane W. Adams Award Applications

The American Cancer Society is announcing an extension to the deadline for submission of applications for the Lane W. Adams Award. The new deadline is January 22, 2001.

The Lane W. Adams Award program was established over 10 years ago to recognize excellence in caring for patients with cancer and their families. The award grew out of the work of the late Mr. Adams, who served as the American Cancer Society’s chief executive officer for 25 years. He gave special emphasis to the concept of the “warm hand of service” to describe the provision of competent, humane, individualized care to patients with cancer and their families.

Over the years, oncology nurses from diverse practice settings and from all parts of the United States have been honored. Gen Foley, RN, MSN, Chair of the Awards Committee, points out that an important strategy in combating the anticipated nursing shortage involves meaningful recognition of those dedicated to excellence in care. The Lane W. Adams Awards program provides a unique opportunity for acknowledging the contributions of direct care providers.

Eligibility criteria and application forms are available online at www.acs.org or by calling 404-329-7765. Each nominee receives a certificate, and the winners are recognized at a dinner during the American Cancer Society’s summer Board meeting.

Last Call for Symptom Management Grants

Four $50,000 grants are being awarded by the ONS Foundation. The letter of intent is due March 1, 2001, and the application is due April 2, 2001.

Visit the PSONS or ONS websites for more information.

TREASURER’S REPORT

for Third Quarter 2000, ending October 15

A. BEGINNING BALANCE (Ending Balance Last Report) $64,584.34

REVENUES

Dues 910.00
Program Participation Fees 2,800.00
Interest 2.46
Fundraising 225.00
Miscellaneous Other
(Give specific) Gain (Loss) IDS (4,885.18)
Sponsors 4,100.00
Total Miscellaneous (385.18)

B. TOTAL REVENUES 2,812.28

EXPENSES:

Printing (Typing, xeroxing, etc.) 426.25
Postage 364.63
Supplies 1,017.39
Meetings 607.50
Bank Charges 27.00
News Production 977.96
Phone 43.50
Professional Services 822.38
Secretarial Services 3,075.00
Tax 147.77
Total Miscellaneous 5,142.61

C. TOTAL EXPENSES 39,880.38

D. ENDING BALANCE THIS PERIOD 59,811.24

$ 12.50
$ 175.00
$ 27.15
$ 2,698.23
$ 200.00

Outstanding Checks 1,015.05

BALANCE IN BANK AND INVESTMENTS $60,826.29
Mark Your Calendars for the
23rd Annual PSONS
Spring Symposium

Creating & Living the Vision:
Oncology Nursing Excellence

March 9th and 10th, 2001 • SeaTac Marriott

Major topic: Lymphoma

Puget Sound Quarterly appreciates
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American Cancer Society
P.O. Box 19140
Seattle, WA 98109