Research Highlights

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Obese Patients With Breast Cancer Often Are Underdosed

Women with breast cancer who are obese often receive reduced doses of adjuvant chemotherapy. This is the conclusion of a retrospective cohort study of nearly 10,000 patients conducted at the James P. Wilmot Cancer Center at the University of Rochester in New York. Some physicians are reluctant to give higher chemotherapy doses to very heavy patients because of the risk of toxic side effects. The study included 9,672 patients with breast cancer treated with a standard adjuvant regimen of doxorubicin and cyclophosphamide from 1990–2001. Of these women, 31% were classified as overweight (body mass index [BMI] of 25–30), 17% were obese (BMI of 30–35), and 14% were severely obese (BMI of 35 or greater). Researchers examined first-cycle dose reductions using a standard formula to calculate body surface area (BSA) based on each patient's height and weight. Each patient's BSA then was multiplied by the standard adjuvant chemotherapy doses for the regimen (doxorubicin 60 mg/m^2 and cyclophosphamide 600 mg/m^2) to calculate the expected dose each woman should receive. The actual-to-expected dose ratio was calculated for each drug, and the ratios for the two drugs were averaged. Patients were considered to have had a first-cycle dose reduction if the actual dose was less than 90% of the expected dose for the first cycle of chemotherapy. Among severely obese women, 37% had first-cycle dose reductions of at least 10% compared with 20% of obese women, 11% of overweight women, and 9% of healthy weight women. Because febrile neutropenia is a common side effect of this regimen, the researchers looked at its incidence to see whether dose reductions were justified. Overall, 462 women (5%) were hospitalized for treatment of febrile neutropenia. Overweight, obese, and severely obese women were no more likely to require admission for febrile neutropenia compared with healthy-weight and underweight women. Additionally, severe obesity was associated with a 39% lower likelihood of admission for febrile neutropenia. According to the study, fears of toxicity from this regimen are unwarranted. The study emphasized that underdosing during the first cycle of chemotherapy cannot be "made up" by giving more chemotherapy later. The practice of reducing dosages and giving an additional cycle or two will increase the total dose of chemotherapy given but will not achieve the dose intensity achieved by giving full doses for the entire treatment course. As the prevalence for obesity increases in the United States, physicians must follow practice guidelines and dose patients at full body weight.

Latino, C. (2005). Study: In well-intentioned but misguided practice, obese breast cancer patients often under dosed, with possible adverse outcomes. *Oncology Times, 27*(14), 14, 16.

Single Medroxyprogesterone Injection Is Effective for Hot Flashes

Hot flashes are a big problem for women, especially for survivors of breast cancer. However, many physicians are concerned about giving hormonal treatments to women with breast cancer. The Mayo Clinic in Rochester, MN, reported that a single shot of medroxyprogesterone acetate (MPA) may offer a safe and effective alternative to managing hot flashes with daily venlafaxine as a single injection of 400 mg of MPA or with 37.5 mg per day of oral venlafaxine for one week followed by 75 mg of MPA daily. Six weeks after therapy began, nearly 60% of the 94 women on venlafaxine were having fewer hot flashes than at baseline and 80% of the women who had a shot of MPA reported relief. At six months, 10% of patients in the venlafaxine arm had improvement of their hot flashes compared to 27% in the MPA group. Women taking MPA reported less sleeping trouble, less constipation, and less abnormal sweating than women taking venlafaxine. Women taking venlafaxine experienced less stress and tension, as is expected with an antidepressant. Some physicians are reluctant to give any synthetic hormones to women with breast cancer. Other physicians believe that because women receive only one injection, the risk of using hormones is very small. The risks and benefits of both treatments should be discussed with women who experience severe hot flashes to determine the best treatment for their symptoms.

Latino, C. (2005). Single medroxyprogesterone injection alleviates hot flashes. *Oncology Times, 27*(16), 10–11.

Dogs May Be Able to Detect Cancer

Physicians from the University of Wisconsin Cancer Center in Madison reported a case study of a breast cancer tumor detected by a dog. A 44-year-old Caucasian woman believed that she was in her usual state of good health when her dachshund puppy began sniffing and poking at her left axilla while she sat on the sofa watching television. After a month of this behavior, she discovered a lump in her upper, outer left breast. Biopsy provided the diagnosis of infiltrating ductal carcinoma. She underwent segmental mastectomy, surgical margins were clear, and axillary sentinel node biopsy revealed no evidence of metastases. Her dog continued to sniff and poke at her axilla postoperatively. She received chemotherapy followed by radiation therapy and tamoxifen. Unfortunately, she developed metastatic disease and died only one year later. Dogs possess a sense of smell up to 100,000 times more sensitive than that of humans. Dogs provide valuable roles in police work, detecting hidden explosives, drugs, tracking criminals, and finding cadavers. Dogs may be able to detect subtle odors emitted by human cancers. Using dogs to detect cancer is referred to as "dognosesis" and has received much attention. A study by Pickel et al. (2004) described an investigation involving two dogs trained to detect melanoma in human patients. The dogs first were trained to localize melanoma tissue samples hidden on healthy human volunteers. Their skills were then tested on seven patients suspected of having melanoma. One dog "reported" melanoma in five patients whose disease was confirmed by biopsies. A sixth patient with suspected but not biopsy-proven disease was reported as positive by the dog. Additional workup confirmed the diagnosis. Studies have shown the presence of volatile organic compounds in the breath of some patients with lung or breast cancer. Another study evaluated the ability of dogs to distinguish patients with transitional cell bladder cancer through urine odor. Dogs were trained to discriminate urine from patients with bladder cancer and controls and then tested for their ability to select patients with cancer. The dogs correctly identified patients 22 out of 54 times (41%). Several case studies have described the detection of cancer by dogs. Although these case studies represent only anecdotal evidence, they stimulate curiosity about the use of dogs in cancer detection. Controlled experiments are needed to assess the potential of dogs in the detection of human cancer.

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