Cancer and Obesity in Rhode Island

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ABSTRACT

There is growing evidence that obesity increases the risk of certain cancers and cancer mortality. As obesity rates are projected to rise over the next decade, associated cancer morbidity and mortality present a significant public health concern. This is particularly striking in the state of Rhode Island, where nearly a third of the population is obese. Interventions such as taxation of obesity-associated foods or insurance incentive programs promoting positive health behaviors could decrease obesity-associated cancer incidence and mortality over time. Public health programs could be deployed at both the local and national levels. We provide a background on obesity-related cancer, discuss existing evidence to support these ideas, and make recommendations regarding individual and societal factors when considering public policy, health-care delivery, taxation structure, and insurance.

KEYWORDS: cancer, obesity, Rhode Island, public health policy, epidemiology

INTRODUCTION

Obesity and associated diseases such as diabetes, cardiovascular disease, and cancer exert enormous individual and societal costs in the United States.[1] In Rhode Island, nearly 30% of adults were obese in 2013.[2] Obesity may be the second-most avoidable cause of cancer in the developed world.[3] While cancer is the second leading cause of death in the United States, policies and public health interventions have lagged behind research on the relationship between cancer and obesity. This report presents the importance of obesity in cancer prevalence and mortality both from a national public health perspective and reviews important policy considerations of obesity-related cancers as a public health problem in Rhode Island.

BACKGROUND

Obesity and Cancer

Globally, diet-associated cancers rival tobacco-associated cancers.[4] For adults 50 and older, up to 14% of cancers in men and 20% of cancers in women may be attributable to obesity.[5] While increased body mass index (BMI) has been associated with increased cancer incidence, weight loss has been associated with a protective effect on obesity-related cancers, especially in females. Weight loss associated with bariatric surgery has also been associated with decreased risk of cancer.[6,7]

Obesity has also been associated with increased cancer mortality.[5] Increased mortality was demonstrated in both nonsmokers and smokers, although to a greater degree in the latter. Conversely, weight loss has been shown to decrease mortality from cancer.[6,7]

Associated Malignancies and Proposed Mechanisms of Oncogenesis

A recent study of over 5 million adults in the United Kingdom demonstrated a near-linear positive correlation between BMI and cancers of the uterus, kidney, cervix, thyroid and blood.[8] Obesity has been also linked to an increased risk of adenocarcinoma of the esophagus and colon, postmenopausal breast cancer, endometrial cancer, and renal cell carcinoma, with increasing risk associated with increased adiposity.[3]

More specifically, increased incidence of several cancers is likely related to increased estrogen conversion by adipocytes.[3] Up to 40% of endometrial cancer cases may be attributable to obesity.[9] In fact, obesity may increase breast cancer risk in post-menopausal women by 50%.[10]

Esophageal adenocarcinomas are frequently associated with gastroesophageal reflux, which is prevalent in the obese population.[11] An estimated 40% of esophageal cancer cases in obese patients may be attributed to obesity.[9] Obesity is the most firmly established dietary risk factor for colon cancer, a leading cause of cancer mortality in the United States.[12] Overall, an estimated 5.8% of all cancers diagnosed in 2007 could be attributed to obesity.[9]

Epidemiology

Adult obesity is defined as body mass index (BMI) ≥ 30, and over a third of adults in the United States are obese.[1] In Rhode Island, 27.7% of adults were obese in 2013.[2] Associated costs are substantial with approximately $378 per adult spent on obesity-related medical costs in Rhode Island in 2013, projected to increase to $864 per adult by 2018.[13] The influence of obesity on public health is rivaled and compounded by cancer.

In Rhode Island, 40% of the population will develop cancer during their lifetime, and 20% will die from cancer.[14]

State annual cancer expenditures total nearly a billion dollars through direct and indirect costs.[14] With high rates of both obesity and cancer in Rhode Island, it is important to understand the relationship between them in order to develop necessary public health interventions.

An estimated 17,094 obesity-related cancer cases were reported in Rhode Island in 2010. Over 40,000 cases of obesity-related cancer are projected for 2030.[2] Increasing prevalence of obesity in Rhode Island should cause concern regarding the increased risk of cancer incidence and mortality, particularly among specific cancers such as esophageal, postmenopausal breast, endometrial, colorectal, and renal cell cancer.[3]

POLICY ANALYSIS

Overall, health policy regarding obesity and its relationship to cancer has been limited in scope given the paucity of supportive research on obesity-related cancers. As prospective studies showed stronger, more consistent relationships between obesity and cancer, the impetus for policy generation was established. While research has supported weight loss in decreasing cancer incidence and mortality, public health efforts are lacking. Currently, despite recognition of this relationship, there remains a gap between empirical scientific evidence and broad public health policy efforts to decrease obesity-related cancers on both state and national levels.

Rhode Island

In Rhode Island, the Partnership to Reduce Cancer prevention objectives outlined numerous goals addressing obesity including increasing fruit and vegetable consumption, decreasing fast food and sugar-sweetened drinks and increasing physical activity.[15] However, the relationship between obesity and cancer was not directly addressed.[15]

Alternatively, the Rhode Island Department of Health has formally recognized the challenge of obesity in cancer control, including the maintenance of a healthy weight as a major area of preventative focus.[16] With the projected increase in national obesity-related cancer diagnoses, the need for timely public health efforts becomes more pressing. Overall, health policy leaders should clearly and consistently educate the public about the relationship between obesity and cancer incidence and mortality.

Health Care

Efforts to decrease the prevalence of obesity-related cancers should begin with addressing the obesity epidemic. While this is a formidable task, even small reductions can have widespread public health effects. In Rhode Island alone, a 5% reduction in BMI by 2030 would result in an estimated decrease of 2,092 obesity-related cancers with cumulative cost savings of approximately $68,000,000.[17]

Physician and health care provider counseling is a key aspect of the management of obesity. Screening for BMI and appropriate follow-up is a core quality measure for the Center for Medicare and Medicaid Services (2013). Furthermore, Medicaid and CHIP have set an important precedent by reimbursing physical activity counseling.[18] Initiatives to promote physical activity could create substantial savings, as annual health care costs of sedentary patients are $1500 more than those of physically active patients.[19]

Taxation and Insurance

Obesity-related cancers result in significant medical expenditures. Comprehensive federally funded studies have attributed over 35% of the increase in average annual medical spending to obesity, rivaling that of smoking, a significant burden to both public and private payers.[20]

Taxation has been used to promote health behavior change as well as increase revenues to offset health care costs in efforts to decrease smoking and tobacco-related diseases. Rhode Island raised its cigarette tax per pack in 2012, the third highest tax per pack in the nation.[21] Rhode Island ranks in the lowest third of states for adult smoking rate and has the second lowest youth smoking rate.[22] A Harvard Center for Cancer Prevention report suggested that obesity could be addressed similarly to tobacco use.[4] Taxation may be one of the most successful methods to change behavior and could thus decrease the consumption of unhealthy foods to promote weight loss.[23] However, substantial tax rate increases are necessary to affect change and are more likely to result in behavior change in certain demographic groups such as lower socioeconomic status, minorities, children and adolescents.[24]

RECOMMENDATIONS

Policy

At state and national levels, government agencies should continue to promote the public dissemination of information regarding obesity-related cancers. Both state and national government organizations have acknowledged the contribution of obesity to the development of certain cancers and the rising prevalence of obesity-related malignancies, but continued efforts are imperative.[15, 25] Public health campaigns should raise awareness of the association between obesity and cancer, mirroring successful efforts educating the public on the detrimental health effects of tobacco.

Health Care

There is a specific need for better studies on the risks and benefits of screening for obesity-related cancers. Cancer-screening guidelines for obese patients have not been defined. Although awareness of the increased risk of certain cancers is important for patients and providers, screening without adequate supporting research could lead to more risk than benefit. Primary care providers should continue to provide annual BMI screening consistent with United States Preventative Services Task Force (USPTF) recommendations as well as appropriate cancer screening. Most importantly,

health care providers and public health organizations should encourage physical activity and engage in effective nutrition counseling to reduce the prevalence of obesity and thereby decrease the incidence of obesity-related cancer.

Insurance

Given the significant costs associated with obesity and obesity-related cancers, insurance initiatives are necessary. There are insurance industry precedents for smoking penalties and smoking cessation support for health insurance subscribers. Similar initiatives for obesity could help offset obesity-related health costs and simultaneously help reduce the incidence of disease.

Under the Affordable Care Act, public and private insurers are required to cover obesity screening and counseling without cost sharing. Consistent with Centers for Medicare and Medicaid guidelines, insurers should cover annual primary care visits and nutrition assessments for individuals with BMI ≥ 30.

Health membership subsidies may be cost-saving or cost-neutral as health care costs of sedentary patients are $1500 more annually than those of physically active patients. As the primary source of health insurance in the United States, employer-sponsored health insurance providers should promote health incentives for employees including gym membership subsidies, coverage of annual primary care visit, annual nutritionist assessment, and the promotion of healthy eating choices at work. Given the significant indirect costs on employers related to obesity, employer-sponsored insurance would be motivated to partner with the health insurance companies to promote change.[19]

Finally, given significant obesity-related costs for private insurers, the industry should provide incentives for obese patients to adhere to recommended screening and health-promoting interventions. These could potentially decrease obesity-associated comorbidities. The insurance industry should not, however, discriminate based on weight or use obesity as a risk factor for determining eligibility or premiums for insurance coverage or treatment.

CONCLUSION

There are several limitations that should be addressed regarding obesity-related cancers. First, evidence-based cancer-screening recommendations for obese individuals are not yet defined and should avoid potential harms such as excess testing or unnecessary procedures. Second, taxation initiatives may generate controversy, as dietary behaviors are complex and personal. Third, while health provider, taxation, and insurance initiatives intend to improve public health, decrease obesity, and reduce the incidence of obesity-related cancers, precautions should be taken to avoid marginalizing obese individuals and discouraging involvement in health care decision-making. While obesity-related cancers have significant public health impact, commensurate efforts to address this problem have been lacking. Initiatives targeting obesity-related cancers may improve as associated research grows in scope and significance.

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