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Rosacea: Relative risk versus absolute risk of malignant comorbidities

To the Editor: Rosacea is associated with an increased risk of malignancies such as thyroid cancer, basal cell carcinoma, glioma, hepatic cancer, breast cancer, and nonmelanoma skin cancer.[1-3] Relative risk (RR) is used to report the associations, but attributable risk or number needed to harm provides a clearer, absolute picture regarding the association between rosacea and malignant comorbidities. We did a PubMed search using the terms *rosacea*, *comorbidities*, and *study* and analyzed cohort studies in which the entity precedes the malignancy, linking rosacea malignant comorbidities and calculating attributable risk per 10,000 person-years and number needed to harm (Table I). The cohort studies analyzed were conducted between June 1, 2008, and June 1, 2018.

The RRs of thyroid cancer, glioma, and hepatic cancer were 1.60, 1.43, and 1.42, respectively. The attributable risks of these comorbidities were 1.41, 1.44, and 0.46 per 10,000 patient-years, respectively.[1-3] The numbers of patients needed to be seen in 1 year to attribute 1 case of these conditions to rosacea were 7080, 6963, and 21,645, respectively. The higher number of patients who need to be seen in 1 year to attribute a case of hepatic cancer to rosacea despite an RR similar to that of the other malignant comorbidities is due to the lower baseline incidence rate of hepatic cancer (Table I).

These findings raise questions about whether recommendations for screening for these malignant comorbidities are appropriate.[4] Physicians often use relative terms rather than absolute terms in evaluating risk and presenting risks to patients.[5] In a questionnaire study, 28 of 88 physicians agreed with the invalid statement "being diagnosed with rosacea increases the chance of developing hepatocellular carcinoma by 42%. This means that for every 10 people who developed rosacea, about 4 people will get hepatocellular carcinoma."[6] However, more than 20,000 patients would need to be seen in 1 year before 1 case of hepatocellular carcinoma could be attributed to rosacea.

Cancer screenings can provide great benefit in the proper context; however, they are not without consequences. For example, 0.7 % of liver biopsies result in severe intraperitoneal hematoma.[7] The risk of development of hepatic cancer attributed to rosacea is about 0.005%. Unfortunately, screening recommendations provided in studies linking rosacea and its comorbidities rely solely on relative association, which is an incomplete and potentially misleading way to depict associations. Exclusively portraying associations in relative terms and physicians' limited ability to delineate statistical significance may result in overestimation of the clinical importance of exposures.

Knowing absolute and relative risks provides physicians with a clearer understanding and more transparent discussions with patients. The absolute terms present a better understanding regarding rosacea's impact on public health and clinical settings.

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Table I. RR, attributed risk, and NNH for comorbidities associated with rosacea per 10,000 person-years

Study	End point	Exposure	RR	95% CI	AR per 10,000 patient-years	NNH
1[1]	Thyroid cancer	Rosacea	1.60	1.07-2.36	1.41	7080
1[1]	BCC	Rosacea	1.50	1.35-1.67	16.46	607
2[2]	Glioma	Mild rosacea	1.43	1.18-1.73	1.44	6963
2[2]	Glioma	Severe rosacea	1.44	1.14-1.82	1.47	6805
2[2]	Glioma	Ocular rosacea	1.55	1.14-2.11	1.84	5444
3[3]	Hepatic cancer	Rosacea	1.42	1.06-1.90	0.46	21,645
3[3]	Breast cancer	Rosacea	1.25	1.15-1.36	6.23	1606
3[3]	Nonmelanoma skin cancer	Rosacea	1.36	1.26-1.47	4.32	2315

AR, Attributable risk; *BCC*, basal cell carcinoma; *CI*, confidence interval; *NNH*, number needed to harm; *RR*, relative risk.

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The association between obesity and hyperhidrosis: A nationwide, cross-sectional study of 2.77 million Israeli adolescents

To the Editor: Hyperhidrosis is a common, stigmatizing condition that is often primary in nature. Although hyperhidrosis was linked to obesity in review articles and textbooks,[1] the evidence supporting this association is limited.[2,3] We conducted a cross-sectional study in a nationwide cohort of 2,772,468 adolescents (59.6% male) to assess the association between body mass index (BMI) and hyperhidrosis. The study was approved by the Institutional Review Board of the Israel Defense Forces Medical Corps. The study group consisted of all examinees to compulsory military service during 1967-2016. The examinees underwent a routine medical screening at a mean age of 17.3 years. The screening included the review of medical records obtained from their primary care physicians, their medical history, a physical examination, and (when indicated) referrals for further assessment as detailed elsewhere.[4] The diagnosis of hyperhidrosis was based on a documented clinical assessment made by a board-certified dermatologist. The BMI percentile groups used were the age-matched and sex-matched percentiles used by the US Centers for Disease