Radiation therapy for high-risk, asymptomatic bone metastases may prevent pain and prolong life

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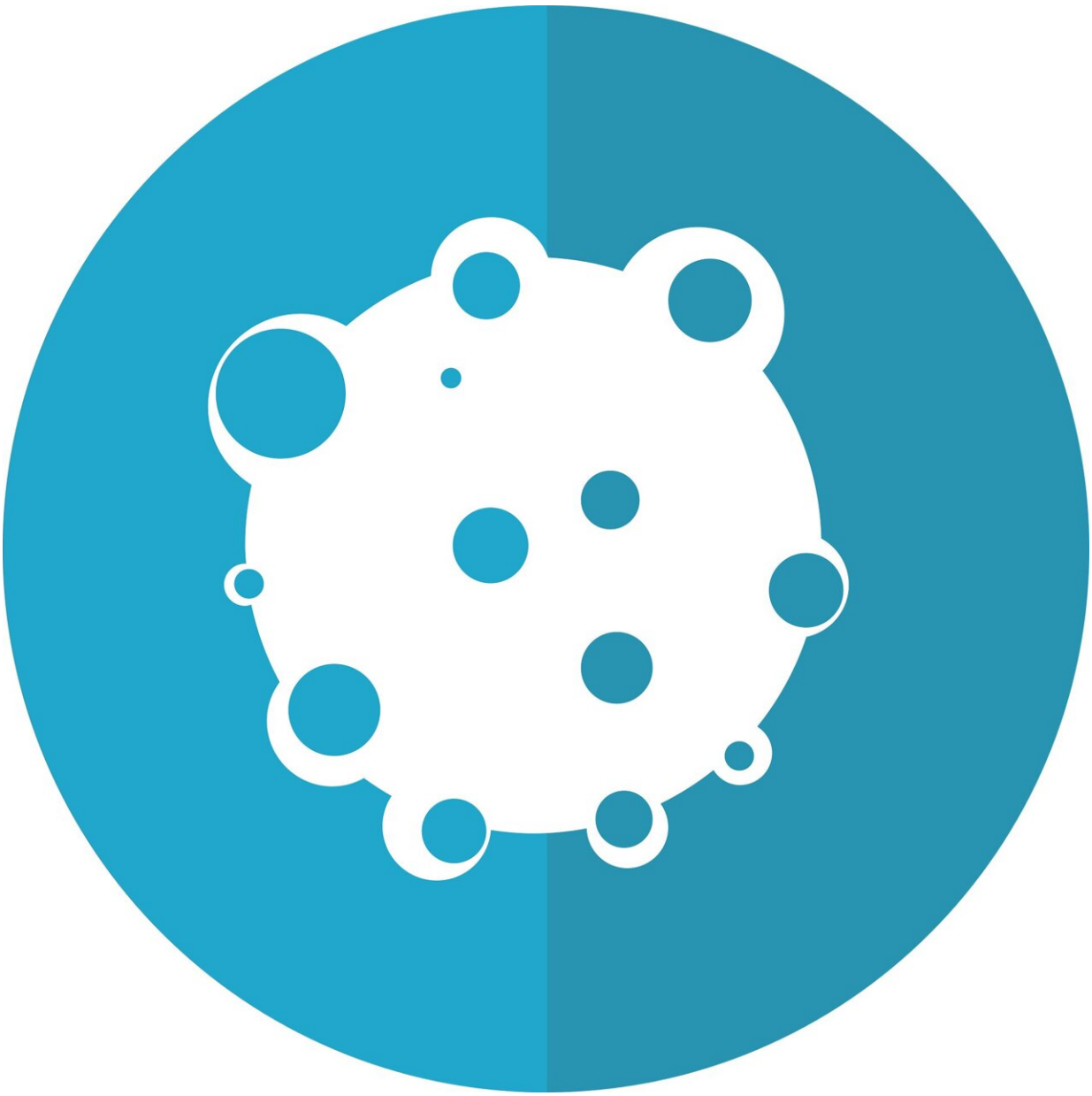

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Treating high-risk, asymptomatic bone metastases with radiation may reduce painful complications and hospitalizations and possibly extend overall survival in people whose cancer has spread to multiple sites, a phase II clinical trial suggests. Results of the multicenter, randomized trial (NCT03523351) will be presented today at the American Society for Radiation Oncology (ASTRO) Annual Meeting.

The clinical trial findings suggest radiation oncologists may play a valuable role in treating widespread bone metastases even in the absence of symptoms. Palliative radiation has historically focused on reducing existing pain and other symptoms when a patient's cancer is no longer considered curable. Investigators hoped to show that painful complications could be prevented by treating asymptomatic bone metastases with radiation and were surprised to find the benefits may extend beyond comfort.

"It's thought-provoking that radiation to prevent pain could potentially prolong life," said Erin F. Gillespie, MD, lead author of the study and a radiation oncologist at Memorial Sloan Kettering Cancer Center in New York. "It suggests that treating to cure the cancer is not the only thing that can help people live longer."

The study arose from the observation that many patients hospitalized for painful bone metastases have evidence of these lesions on imaging scans several months earlier, Dr. Gillespie said. Although external beam radiation therapy is standard-of-care for painful lesions, it has not been used for asymptomatic ones outside of the oligometastatic setting;

generally, patients remain on systemic therapy until lesions become symptomatic. Dr. Gillespie and her colleagues wanted to determine "if and when we might intervene *before* these symptoms occur to prevent hospitalizations and debility from cancer."

For the study, researchers identified 78 adults with a metastatic solid tumor malignancy and more than five metastatic lesions, including at least one asymptomatic high-risk bone lesion. Whether a lesion was high-risk was determined by its size (if it was 2 centimeters or more in diameter); its location in the junctional spine; whether it involved the hip or sacroiliac joint; or if it was in one of the long bones of the body, such as those found in arms and legs. Between all enrolled patients, there were a cumulative 122 bone metastases.

Among study participants, the most common types of primary cancer were lung (27%), breast (24%) and prostate (22%). Participants were randomly assigned to receive standard treatment, which could include systemic treatment (such as chemotherapy or targeted agents) or observation, with or without radiation therapy to treat all of their high-risk bone metastases. Radiation doses varied but were typically low (i.e., not ablative). All patients were followed for at least 12 months or until they succumbed to their disease.

The primary endpoint was to determine whether treating asymptomatic lesions could prevent skeletal-related events (SREs)—a common and often painful and debilitating complication of bone metastases. SREs include pain, fractures and compression of the spinal cord that requires surgery or radiation. They can contribute to a higher risk of death and higher health care costs.

Researchers found that treating the asymptomatic lesions with radiation reduced the number SREs and SRE-related hospitalizations and extended overall survival, compared to people who received no radiation. At the

end of one year, for patients on the radiation arm, SREs occurred in 1 of 62 lesions (1.6%), compared to 14 of 49 lesions (29%) for those receiving standard care (p