: Osteonecrosis; Avascular necrosis; Bone death; Blood supply; Treatment; Corticosteroids; Bone collapse

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Osteonecrosis is a debilitating condition that results from the interruption of blood ow to bone tissue, causing the bone cells to die [1]. Without adequate blood supply, the a ected bone becomes weak, fragile, and prone to collapse [2]. While osteonecrosis can occur in any bone, it most commonly a ects the hip joint, followed by the knee and shoulder. e condition can develop gradually and may remain asymptomatic in its early stages, making it di cult to diagnose until signi cant damage occurs [3,4]. Understanding the causes, symptoms, diagnosis, and treatment options for osteonecrosis is essential for both prevention and e ective management of the condition.

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Osteonecrosis can be caused by a variety of factors, many of which interfere with the normal blood supply to the bone. One of the most direct causes of osteonecrosis is trauma to a bone, particularly fractures or dislocations. A fracture near or involving a joint can damage blood vessels, reducing the ow of oxygen and nutrients to the bone tissue [5]. is lack of blood supply can result in bone death, leading to osteonecrosis. e hip is especially vulnerable to osteonecrosis a er a hip fracture, particularly in elderly individuals.

Long-term use of corticosteroids (such as prednisone) is a well-established risk factor for osteonecrosis. ese medications are o en prescribed to treat in ammatory conditions like rheumatoid arthritis or lupus, but prolonged use can impair blood ow to bones. Corticosteroids may cause changes in blood vessels that restrict blood ow, resulting in bone tissue damage [6].

Excessive alcohol consumption is another major risk factor for osteonecrosis. Chronic heavy drinking can lead to the narrowing of blood vessels, reducing blood supply to bones. Alcohol may also increase the production of fat cells, which can block blood vessels in the bone, further contributing to osteonecrosis [7].

is genetic condition causes abnormal red blood cells, leading to blockages in small blood vessels. ese blockages can restrict blood ow to bones, particularly in the hips and shoulders.

A systemic autoimmune disease that can cause in ammation and damage to blood vessels, increasing the risk of osteonecrosis [8].

High blood sugar levels over time can damage blood vessels and reduce blood ow to bones.

People with HIV, especially those on antiretroviral therapy, are at increased risk of developing osteonecrosis.

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Other potential risk factors for osteonecrosis include radiation therapy, chemotherapy, certain blood disorders, and genetic predisposition. Individuals with a family history of osteonecrosis or

examination and medical history, including a review of any risk factors