KNOWLEDGE OF OSTEOPOROSIS AMONG MEDICAL STUDENTS OF DIFFERENT MEDICAL COLLEGES

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ABSTRACT:
Osteoporosis is a systemic skeletal disorder characterized by low bone mass, micro architectural deterioration of bone tissue leading to bone fragility, and consequent increase in fracture risk. The objective of this study is to see the knowledge of medical students about osteoporosis. This cross-sectional study was conducted among medical students of different medical colleges. All the students were given a predefined questionnaire. There were 90 medical students included in this study. The mean age of the students was 21.23±2.13 years. There were 45(50%) males and 45 (50%) females in this study. Most of the students belonged to fourth year and final year. Out of 90 medical students, 85 already knew about the osteoporosis, its causes and impact on one’s health. Only 5 students did not know about this disease. The reasons given by them were that they did not study pathology well or they did not attend the wards properly.

KEYWORDS: OSTEOPOROSIS
INTRODUCTION:
Osteoporosis is a systemic skeletal disorder characterized by low bone mass, micro architectural deterioration of bone tissue leading to bone fragility, and consequent increase in fracture risk. It is the most common reason for a broken bone among the elderly. Bones that commonly break include the vertebrae in the spine, the bones of the forearm, and the hip. Until a broken bone occurs there are typically no symptoms. Bones may weaken to such a degree that a break may occur with minor stress or spontaneously. After a broken bone, chronic pain and a decreased ability to carry out normal activities may occur.

Osteoporosis may be due to lower-than-normal maximum bone mass and greater-than-normal bone loss. Bone loss increases after menopause due to lower levels of estrogen. Osteoporosis may also occur due to a number of diseases or treatments, including alcoholism, anorexia, hyperthyroidism, kidney disease, and surgical removal of the ovaries. Certain medications increase the rate of bone loss, including some antiseizure medications, chemotherapy, proton pump inhibitors, selective serotonin reuptake inhibitors, and glucocorticosteroids. Smoking, dairy consumption, and too little exercise are also risk factors. Osteoporosis is defined as a bone density of 2.5 standard deviations below that of a young adult. This is typically measured by dual-energy X-ray absorptiometry.

Prevention of osteoporosis includes a proper diet during childhood and efforts to avoid medications that increase the rate of bone loss. Efforts to prevent broken bones in those with osteoporosis include a good diet, exercise, and fall prevention. Lifestyle changes such as stopping smoking and not drinking alcohol may help. Biphosphonate medications are useful to decrease future broken bones in those with
previous broken bones due to osteoporosis. In those with osteoporosis but no previous broken bones, they are less effective. They do not appear to affect the risk of death. A number of other medications may also be useful. Osteoporosis becomes more common with age. About 15% of Caucasians in their 50s and 70% of those over 80 are affected. It is more common in women than men. In the developed world, depending on the method of diagnosis, 2% to 8% of males and 9% to 38% of females are affected. Rates of disease in the developing world are unclear. About 22 million women and 5.5 million men in the European Union had osteoporosis in 2010. In the United States in 2010, about 8 million women and between 1 to 2 million men had osteoporosis. White and Asian people are at greater risk. The word "osteoporosis" is from the Greek terms for "porous bones" (1-3). The objective of this study is to see the knowledge of medical students about osteoporosis.

MATERIAL OF METHODS:
This cross-sectional study was conducted among medical students of different medical colleges. All the students were given a predefined questionnaire. All the data was entered and analyzed with SPSS Ver. 23.0. The quantitative variables were presented as mean and standard deviation. The qualitative variables were presented as frequency and percentages.

RESULTS:
There were 90 medical students included in this study. The mean age of the students was 21.23±2.13 years. There were 45(50%) males and 45 (50%) females in this study. Most of the students belonged to fourth year and final year. Out of 90 medical students, 85 already knew about the osteoporosis, its causes and impact on one’s health. Only 5 students did not know about this disease. The reasons given by them were that they
did not study pathology well or they did not attend the wards properly.

**DISCUSSION:**
The underlying mechanism in all cases of osteoporosis is an imbalance between bone resorption and bone formation. In normal bone, matrix remodeling of bone is constant; up to 10% of all bone mass may be undergoing remodeling at any point in time. The process takes place in bone multicellular units (BMUs) as first described by Frost & Thomas in 1963. Osteoclasts are assisted by transcription factor PU.1 to degrade the bone matrix, while osteoblasts rebuild the bone matrix. Low bone mass density can then occur when osteoclasts are degrading the bone matrix faster than the osteoblasts are rebuilding the bone.

The three main mechanisms by which osteoporosis develops are an inadequate peak bone mass (the skeleton develops insufficient mass and strength during growth), excessive bone resorption, and inadequate formation of new bone during remodeling, likely due to mesenchymal stem cells biasing away from the osteoblast and toward the marrow adipocyte lineage. An interplay of these three mechanisms underlies the development of fragile bone tissue. Hormonal factors strongly determine the rate of bone resorption; lack of estrogen (e.g. as a result of menopause) increases bone resorption, as well as decreasing the deposition of new bone that normally takes place in weight-bearing bones. The amount of estrogen needed to suppress this process is lower than that normally needed to stimulate the uterus and breast gland. The α-form of the estrogen receptor appears to be the most important in regulating bone turnover. In addition to estrogen, calcium metabolism plays a significant role in bone turnover, and deficiency of calcium and vitamin D leads to impaired bone deposition; in addition, the parathyroid glands react to low calcium levels by secreting
parathyroid hormone (parathormone, PTH), which increases bone resorption to ensure sufficient calcium in the blood. The role of calcitonin, a hormone generated by the thyroid that increases bone deposition, is less clear and probably not as significant as that of PTH (4-6).

REFERENCES: