Osteoporosis in Campton Community

Name

Institution

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Osteoporosis in African America men and women in Campton community

Introduction

Osteoporosis is a condition of bone softening, deterioration or loss of bone mineral density leading to bone fracture, disability, and death from the medical complications. The situation surfaces when the human bones become porous because of the loss of minerals especially calcium. The reduction of the bone mass weakens the bones making them brittle so they easily break at the hips, wrist, ribs and spine. Osteoporosis is a major heath challenge and epidemic in America affecting around 10 million adults. The diseases has influence the American society and around 34 million adults have degenerating and low bone mass termed as Oteopenia.The Osteopenia is a condition placing adults at a risk of contracting Osteoporosis. Many cases related to Osteoporosis go undetected or undiagnosed while over 30 percent of postmenopausal women have osteoporosis around 2 percent are diagnosed seeking medical attention. Osteoporosis is considered a Woman disease but the research conducted on the African American women and

Men in Campton community show the statistics of impact of the disease to the community. The statistics reveal that about 30 percent of men would be affected at the age of 75.Osteoporosis is termed as a silent disease since it does not have exposed symptoms showing that an individual has contracted the disease. The disease is only revealed when the bones break after growing too weak and the disease causes much pain to the adults crippling them. African women and men are at the higher risk of contracting the disease but it is still considered a menace globally since everyone in vulnerable.

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The disease also results from the demineralization of bones leading to the reduction of human bone density because of hormonal imbalances affecting most women. The most relevant aspect of the disease is the weakening of the bones causing the fractures. The international Osteoporosis foundation statistics reveals that one in three women over fifty years, would experience osteoporotic fractures while 1 in 5 men over 50years.There is expectation that in the year 2050,there would be global hip fracture in men projected to increase by 310 percent while 240 percent in women.

Implications of education, prevention and accessibility that need to be addressed by health care practitioners

The bone mineral density of most human beings nationally and internationally is very vital for human beings as they grow grown older because of the decrease in mineral density. The bone mineral density (BMD) testing is used to determine how low or high the bone's density and fracture predictions.BMD testing is the less used test because of lack of awareness, financial complications and accessibility of hospitals and clinics.

The statistics of National Osteoporosis Foundation reveals that osteoporosis is a fundamental problem in African-American women and men in Campton community California. The problem is much prevalent among the group because they have risk factor for Osteoporosis from lactose intolerance causing vitamin D deficiency and calcium. In America, African – American women are more vulnerable to contract diseases definitely leading to osteoporosis emanating from the risk factors contributing to osteoporosis. The possible risk factors associated with the disease are the family genetic structure or history, limiting factors and inability to absorb vitamins, and genetic composition.

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Other risk factors include age, smoking, weight, alcohol consumption, diet and the environmental factors. The articulated factors are responsible and contributing to the contraction of the osteoporosis disease. There are also some epidemiological studies proving the relationship between the early and later bone mass development at the optimum and entire subsequent life. The basis of the research conducted discusses osteoporosis and the relationship between environmental factors and bone health subsequently in life. All the mentioned common risk factors to osteoporosis are considered and inclusive in the case study.

Background and the rationale

Literature review

Osteoporosis epidemic is linked to various risk factors such as hormonal imbalances, late menarche, the physical inactivity, nutrition imbalances and genetic predispositions. It is very important to initiate solutions to curb the extensive problem of possible situations leading to the development of the disease within the immediate society.

According to Bonjour and Chevally (2015), the critical role in bone acquisition is played by puberty menstruation. The greatest risk of osteoporotic fracture is linked to shorter periods of exposure to estrogen during puberty when the peak bone mass is attained. The researchers further assert that the hypothesis is not yet confirmed by the recent prospective studies. Bonjour and Chevally (2015), shows that in young adulthood, later menarche is attributed with the reduced bone mineral density, low mechanical resistance, and impaired microstructiral bone components. The correct bone deficit explained why later menarche increases the risk of bone fractures during adolescence. In physically healthy individuals, the bone development and puberty timing shared the same aspects as the significant physiological variability and elevated

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expression of heritage factors. The aspects are associated by the moderate impact of the environmental factors including nutrition and the physical activities. There are genuine conditions enhancing the modification of the bone acquisition process and puberty timing offering various understanding of the epigenetic basis

The extent of the similarity between quantitative bone phenotypes associated with the some influence of genetic variants genome-wide (Karasik et al. (2010).Benefits of their study elaborated the requirements to consider various aspects for understanding the specificity of the bone phenotypic as well as genetic determinant. The study pertaining to the phenomenon shows the existence of challenges regarding the identification of the reasonable proportions of the variation in skeletal phenotypes regulated by the similar genes.

There are contrasting reports about the non-pleitropic and pleitropic genes for skeletal phenotypes yielding new molecular insights into the fundamental biology of the bone (Karasik *et al,* 2010).Karasik suggest that genetic relationships within the BMD phenotype group surpasses the genetic correlations between the BMD and the heel ultrasound and femoral geometric characteristics. The assumptions made in the following case concerns about the settings of genes contributing to the BDM of the spine and of the hip and heel geometry. The genes were different and therefore leading to the difference in susceptibility to the Osteoporosis disease.

The cellular expression of OPG and RANKL in the Osteoblastic linage is controlled by the methylation of the genes of gene's promoter's regions. Epigenetic mechanism elaborates about the inheritance variations in the DNA and do not impair the basic sequence. The sequence can be reversed and are expressed as the distinct rhythms of gene expression (Delgado-Calle and Riancho, 2012).Epigenome is the mixing of epigenetic marks and is dynamically changed in

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response to the environment at cellular and individual level. There are various types of epigenetic technique such as the DNA methylation performing repressing duties in the CpG islands and prompter regions blocking the expression of genes.

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