

Etiological reasons, screening, and simple prophylactic measures of uterine fibroid in women of African descent

Abstract

Aim: To review the current findings on the causes of uterine fibroids (leiomyoma) among African women while searching for simple screening and prophylactic measures.

Methods and materials: Recent articles over the past ten years on the subject of uterine fibroids, its peculiarities in women of African descent, the etio-pathogenesis, simple screening and preventive measures were gathered using the medical search engines.

Results: The findings showed that African women as compared to Caucasians and Japanese possess certain genes which could explain their severe presentation. Increased body mass index was also implicated as possible reason for predisposition to uterine fibroids in African women with them being more likely to be vitamin D deficient. A social factor such as the use of hair relaxers was shown to be associated with increased incidence of uterine fibroid among African women as these agents are known endocrine disruptors. Lastly, certain non-modifiable factors such as family history, early age of menarche were found to increase the risk of uterine fibroid development. All these findings can be used as screening measures to ascertain the risk of developing uterine fibroid among African women.

Conclusion: Modifiable factors that predispose the African woman to uterine leiomyoma were identified to include obesity, the use of chemical hair products, vitamin D deficiency as well as less consumption of fruits and vegetables. African women with these factors as well as the non-modifiable factors have a high risk of developing uterine fibroid. It is therefore recommended that routine screening be done to find those at risk early in life and those identified should be investigated further. Encouraging the use of garlic, vitamin D supplements and natural sources of aromatase inhibitors offers the African woman one of the cheapest means of prophylactics for uterine fibroid.

Keywords: uterine fibroid (UF), African women, natural sources, cheapest, inhibitors, consumption

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Introduction

Uterine fibroids (UF), one of the most common benign gynecologic tumors has been found to occur more often in African women.¹ Since the disease is not acute in nature, its onset probably begins early in the reproductive years before clinical manifestation hence the need for early screening and diagnosis. The major reason for such disparities is the fact that routine screening for fibroid is usually not performed as only 20% to 50% of those affected are symptomatic with the rest all being asymptomatic.² Although interstitial localization of uterine fibroid is the most frequent in practice they become symptomatic only when large in size. However, sub mucous localization appear to be symptomatic irrespective of its size either small or big.³ Although poorly understood, certain etiological factors such as race/ethnicity, parity and age of menarche have been attributed to being the cause of uterine fibroid development in general. In African women however, other factors like obesity, hair relaxer use also come into play thus may explain why the expected pharmacological treatment which have been proven to be effective in other races not be effective in them. The problem is compounded by the fact that many clinical trials do not include adequate representation of all race/ethnicity.⁴ This leaves the African woman with only surgical treatment options like myomectomy and hysterectomy. Myomectomy is known to have a high recurrence rate while hysterectomy is no better option for the African woman for cultural reasons,⁵ thus it is imperative to look for

other options for treatment for the African woman who may not even be able to afford the emerging pharmacotherapies. To achieve this, there is a need to search for the specific causes of uterine fibroids among the African woman so as to find simple preventive measures to curb this condition thus the purpose of this review.

Methods and materials

Recent articles over the past ten years on the subject of uterine fibroids, its peculiarities in women of African descent, the etio-pathogenesis and preventive measures were gathered using the medical search engines.

Findings

Etiological peculiarities of myoma among the African race

Genetics

Countries like Finland and Japan have been able to identify some genes responsible for uterine fibroid such as TNRC6B (trinucleotide repeat containing 6B), SLK (STE20 like Kinase), BET1L (Bet1 golgi vesicular membrane trafficking protein-like), FASN (fatty acid synthase) and CCDC57 (coiled-coil domain containing 57) for development of uterine fibroids.⁶ These genes amongst new ones were also found in Caucasians.⁷ However among Africans entirely new genes were found (1q42.2, 4p16, 10q26).⁸ Thus a genetic reason

for development of uterine fibroids has been established and this could explain the severe presentation of uterine fibroid in Africans as compared to other races.

Obesity

Obese women are typically predisposed to hormonal imbalance as a result of an ovulation, leading to relatively low levels of progesterone and increased levels of estrogen due to peripheral conversion of androgens. Studies actually show that uterine fibroid could either be estrogen dependent or progesterone dependent⁹ therefore any imbalance in these hormones result in uterine fibroid development or progression. Another major factor for the development of obesity especially among educated African women was a sedentary lifestyle as more opt for white collar jobs further compounding this issue.¹⁰

Vitamin D deficiency

Increased fibroid risk has been linked with deficiency of vitamin D and the levels among black women has been found to be lower than in Caucasians.¹¹ Sunlight exposure is the main source of vitamin D so it is a paradox that African women living in Africa are also deficient in vitamin D even though there is abundance of sunlight.¹² This may be explained by the increased melanin pigment in African skin which blocks the absorption of ultraviolet light needed for synthesis of vitamin D.¹¹ The decreased level of vitamin D is further exacerbated by less milk consumption in Africans. Lastly, Vitamin D receptors (VDR) have been known to be at a reduced level with patients with uterine fibroid serving as further proof of a link between vitamin D deficiency and uterine fibroid development.¹³ This factor may explain why African women compared to other races have increased risk of development of uterine fibroid and is important as it can serve as potential means by which the incidence of fibroid could be curbed.

Chemical hair product

Black women have routinely used hair relaxers for many years now.¹⁴ Although these products are for external use, there is no guarantee that they do not enter into circulation as burns to the scalp usually result.¹⁵ It can therefore be theorized that upon entry into circulation, these products with the active ingredient being phthalates may cause endocrine imbalance as it is a known hormone disruptor.¹⁴ It is difficult to provide insight as to the specific mechanisms by which hair relaxers could increase the risk of uterine fibroid development especially within the African race as no proper research has been carried out to ascertain the effect and extent of these chemicals on the body.¹⁵

Screening and possible prophylactic measures for the African race

Screening

Certain risk factors exist in the development of uterine fibroid during reproductive years of African women, such factors include heredity, early menarche and environmental factors. Women with family history of uterine fibroid as statistics show are 3 times more likely to develop uterine fibroid.¹⁶ Africans are more predisposed to having early menstruation at the age of 11 years and younger as compared to other races.¹⁷ The risk of development of uterine fibroid reduces significantly as menarche occurs at the age of 13 years and older.¹⁸ Diet, an environmental factor, has been implicated as a risk factor for the development of uterine fibroid among African women

as they are less likely to consume fruits, vegetables, vitamins and mineral supplements.¹⁹

Simple prophylactic measure

Garlic

Garlic has been shown to promote the reduction of uterine fibroid size by the removal of catabolic waste from the uterine and ovarian tissues as well as the entire pelvic cavity through accelerated metabolism, lymph drainage and the sloughing-off of tissues.²⁰ It has also been shown to correct imbalances of estrogen metabolism associated with excessive catechol estrogens and elevated inflammatory prostaglandins. There is an effect of Garlic extracts on protein levels leading to reduction of protein synthesis, hence reduction in size of uterine fibroid.²¹

Natural Aromatase Inhibitors (AI)

According to a study about uterine fibroid tissues, African women express more aromatase in uterine fibroid tissue than Caucasian women.²² In view of this, natural products that are aromatase inhibitors, such as *Brassaiopsis glomerulata* (Blume) Regal and *Garcinia mangostana* L. (Mangosteen) are useful in the treatment of uterine fibroid.²³ Not only can be used as treatment but they can act as chemoprevention against the recurrence of uterine fibroid. Flavonoids an aromatase inhibitor has been studied extensively and are potent in action.²³

Vitamin D supplement

According to various documented reports, African women with uterine fibroid have vitamin D deficiency. However, supplementation with vitamin D has not been used as a treatment option. Studies report that in a laboratory culture of uterine fibroid, calcitriol administration reduced proliferation of fibrotic cells.²⁴ Vitamin D therefore can be considered as a means of prevention and treatment of uterine fibroid especially among the African women with deficiency.

Conclusion

Modifiable factors that predispose the African woman to uterine leiomyoma were identified to include obesity, the use of chemical hair products, vitamin D deficiency as well as less consumption of fruits and vegetables. African women with these factors as well as the non-modifiable factors have a high risk of developing uterine fibroid. It is therefore recommended that routine screening be done to find out those at risk early in their reproductive life immediately after menarche, and those identified should be investigated further. Also the prophylactic measures for uterine fibroid include the use of garlic, vitamin D supplements and natural sources of aromatase inhibitors.

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None.

Conflict of interest

The author declares there is no conflict of interest.

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