

# **RESEARCH ARTICLE**

# FIBROID DISEASE PROGNOSIS AND METHODS OF TREATMENT IN KSA: A SYSTEMATIC REVIEW

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#### Abstract

**Objective:** A growing number of research on fibroid disease among women and methods of treatment. The goal of this systematic review was to spot light on fibroid disease prognosis and to determine the methods of treatment used in Kingdom of Saudi Arabia (KSA).

**Methods:** Authors began with recognizing the important examination proof that spots light on fibroid disease prognosis and to determine the methods of treatment used in KSA. We led electronic writing look in the accompanying data sets: Ovid Medline (2010-present), Ovid Medline Daily Update, Ovid Medline in process and other non-filed references, Ovid Embase (2010-present), The Cochrane Library (latest issue) and Web of Science. Just examinations in English language were incorporated. The precise selection was acted in close collaboration with a clinical examination curator.

**Results:** A total of **19** studies were identified in the search, all of them were assessed for eligibility, and 6 articles were included in this review.HIFU is now utilized therapeutically in the treatment of leiomyomas in gynecologic oncology. Since the 1990s, when clinical studies of HIFU treatment for leiomyomas first started, HIFUNIT 9000 and prototype single focus ultrasound devices have been used to treat the vast majority of leiomyoma patients. Excellent-intensity focused ultrasound (HIFU) is a non-invasive, gold-standard therapy for all sizes of leiomyomas, with high effectiveness, minimal surgical morbidity, and no systemic adverse effects.

**Conclusion:** Fibroids of the uterus that were causing symptoms responded well to HIFU therapy. The literature on embolization of the uterine artery is sparse (UAE). HIFU is a great choiceto treat fibroids in your uterus.

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Introduction:-

Fibroid tumors of the uterus, also known as leiomyomas, are a widespread benign neoplasm in women of reproductive age, with a prevalence of 20-40% among this group [1]. Leiomyomas are another name for fibroid tumors of the uterus. Uterine fibroids are the source of symptoms such as heavy and protracted menstrual flow, pain, frequent or urgent urination, bulk-related symptoms, and constipation in 10-20% of women [2]. Uterine fibroids are the most common cause of bulk-related symptoms. Surgery, such as a myomectomy or hysterectomy, is the typical course of treatment recommended when serious symptoms, such as excessive blood loss or pain in the pelvic region,

are present. Hysterectomy is not often considered a practical choice for women who want to have children in the foreseeable future. Because of this, women who place a high importance on maintaining their uterus have little option but to go through therapy that does not include surgery [3,4].

In order to keep the uterus but still provide local control of uterine fibroids, there are a variety of procedures that are less invasive that one may choose from. One of these methods, known as high-intensity focused ultrasound (HIFU), has found broad usage in the treatment of solid tumors, such as uterine fibroids [5,6]. Because high-intensity focused ultrasound (HIFU) therapy can cause coagulative necrosis at a specific focal point inside the body without harming overlying or adjacent structures even when those structures are in the path of the beam [7], it is gaining popularity as a non-invasive treatment modality for the treatment of localized solid tumors, including benign tumors and malignant tumors. In addition, an extracorporeal transducer may be used to focus ultrasonic beams of high intensity, which can then be used for thermal ablation of cancerous growths [8]. This eliminates the need for needles or probes to be inserted into the patient.

In 1942, Lynn and colleagues [9] postulated that a focused ultrasound therapy may be produced by modulating the local extracorporeal source of concentrated ultrasonic radiation. [citation needed] This idea was later developed into a clinical practice. Breast cancer, malignant bone tumors, and liver cancer are just a few of the numerous malignancies that have benefitted from the non-invasive surgery that therapeutic ultrasound offers [10,11]. The clinical research that is being done and the technical breakthroughs that are being made in HIFU are moving at a dizzying rate these days. HIFU treatment seems to be safe, effective, and realistically achievable in clinical applications, according to the results of clinical investigations that have been conducted by a number of research organizations [12–14].

The current systematic review aimed to spot light on fibroid disease prognosis and to determine the methods of treatment used in Kingdom of Saudi Arabia (KSA).

# Methodology:-

#### **Review Question**

This review seeks to summarize the available evidence on fibroid disease prognosis and to determine the methods of treatment used in Kingdom of Saudi Arabia (KSA). The specific review questions to be addressed are:

(1) What is the prognosis of fibroid disease among women in KSA?

(2) What are the management approaches and treatment for fibroid disease in KSA? Study design

This is a comprehensive systematic review of the literature aboutfibroid disease prognosis and the methods of treatment used in Kingdom of Saudi Arabia (KSA). This study relied on reviewing the literature using systematic approach. The literature search, study selection based on title and abstract, and data extraction were carried out according to the study objectives and eligibility criteria as demonstrated later in this section. In case of duplicate articles, only one was considered.

#### Search Strategy

The studies were identified through research in the PubMed, Embase, Scopus, Web of Science and google scholar databases, performed in September 2022. Grey literature was also searched. Search was done and selecting only articled published in English language. Moreover, selected articles were chosen from peer-reviewed journals. In addition, the bibliographies of any qualified articles recognized were checked for extra literature and reference searchwas done for all included references utilizing ISI Web of Science. The selected period during the search was (2010 – present). Published articles were considered to be compositions that showed up in peer-reviewed journals. Articles present in grey literature were excluded from our review unless they meet eligibility criteria and free of bias.

#### Search Keywords

For each database searched, all keywords were used during the searching process and literature identification. Keywords used for the searching process were (fibroid OR prognosis OR management OR treatment OR leiomyoma OR KSA OR systematic review). The search was done by using "AND" and "OR". In some instances, one keyword was used and other instances tow or more keywords were used. All searching process was performed during the searching period (2010 – present).

## Eligibility criteria

The inclusion criteria were as follows: studies published in English only, published on the date of searching period (2010 - present), evaluating latest updates on fibroid disease prognosis and the methods of treatment used in Kingdom of Saudi Arabia (KSA).

#### Selection of the studies

For titles and abstracts that were potentially suitable for the review and met the selection criteria, full text was obtained for further evaluation. Full-text was assessed against the list of eligibility criteria for inclusion. A process of discussion with authors resolved any uncertainty of selection. However, in some cases, a third reviewer was consulted. Figure 1 shows the process of selection for studies reported in the results section.

#### Outcomes

#### **Primary outcome**

To spot light on fibroid disease prognosis and to determine the methods of treatment used in Kingdom of Saudi Arabia (KSA).

#### Secondary outcome

None.

#### Data extraction and management

After assessing the title, abstract, and full text of the studies according to the eligibility criteria, the data of interest were collected using a standard form (Table 1). The following information were collected:

- 1. Authors,
- 2. Date,
- 3. Setting,
- 4. Diagnosis of fibroid disease,
- 5. Management approach,
- 6. Prognosis of fibroid disease, and
- 7. Implication of the study

# Data Sifting and Extraction (choice and coding)

The documents were scanned, and an electronic information extraction method based on Microsoft Access was used to recover the data from the scanned images. The data were retrieved at will by two reviewers using a standardized framework that had been built specifically for this purpose by the survey's creators. In order to complete the extraction framework, the following information was added:

- 1. information on the article itself, such as its title, authors, the journal in which it was published, the year and location of the study, the nation in which the review was conducted, the kind of distribution, and the source of financing.
- 2. Examples of the finer points of a study include the following: focus on transience (planned or review), patient enlistment methods (successful or non-continuous), location, year of data collection and response rate, qualification (consideration and avoidance rules), name of appraisal tool(s), approval of evaluation tool(s), and so on and so forth (s).
- 3. Details on the people who took part in the research, including their sample size, population characteristics (including mean age, standard deviation, and gender distribution), marital status (if available), and any other relevant demographic data.

#### **Statistical Analysis**

The data that were recovered were entered into the Statistical Package for the Social Sciences, known as SPSS, and coded before a frequency analysis was carried out in order to determine patterns of similarity. The content that was duplicated throughout the selected articles was organized into its own individual tabs so that it could be seen more clearly. The data was collected from the study that was considered to be eligible using descriptive statistics and shown in tables. After that, a narrative synthesis was constructed using the summaries of the selected articles. The elements of the experiment that proved successful in the woodland plots were meticulously chosen.

# **Results:-**

A total of **19** studies were identified in the search, all of them were assessed for eligibility, and 6articles were included in this review (Figure 1).



Figure 1:- Flow chart of selection process.

Studies included in this systematic review highlighted the prognosis of fibroid disease and treatment approach. Uterine fibroids are a costly medical condition. Due to unequal distribution, Africans have the highest risk of infection. This study investigated global population differentiation at UF-associated SNPs discovered by GWAS to explore if population structure at risk loci accounts for interethnic disparities in prevalence. Female cohorts from Europe, admixed America, Africa, east Asia, and South Asia were studied for 28 SNPs with GWAS significance for European Caucasians. Polygenic risk score (unweighted and weighted) and various estimators were computed. Fisher's exact test found group differences at UF risk loci (P 10-5). Averaged across all loci, polygenic risk scores did not vary. Only loci carrying risk alleles with ethnicity-specific enrichment/depletion patterns were included in the study. Population genetic structure at UF risk loci appears to correlate with variances in disease prevalence among ethnic groups [15].

HIFU is now utilized therapeutically in the treatment of leiomyomas in gynecologic oncology. Since the 1990s, when clinical studies of HIFU treatment for leiomyomas first started, HIFUNIT 9000 and prototype single focus ultrasound devices have been used to treat the vast majority of leiomyoma patients. Excellent-intensity focused ultrasound (HIFU) is a non-invasive, gold-standard therapy for all sizes of leiomyomas, with high effectiveness, minimal surgical morbidity, and no systemic adverse effects. Fibroids of the uterus that were causing symptoms responded well to HIFU therapy. The literature on embolization of the uterine artery is sparse (UAE). HIFU is a great choicefor a method to treat fibroids in your uterus [16].

Endometrial stromal sarcoma (ESS) is a primary uterine sarcoma that accounts for 15-26% of all primary uterine sarcomas but just 0.2% of all uterine malignancies. Two to four per million females are diagnosed with ESS each year. According to our research, we offer the first instance of vulvar ESS in a 50-year-old woman who had per vaginal spotting for three months. Approximately five years ago, she had a subtotal hysterectomy and left salpingo-oophorectomy for uterine fibroids. A cystic tumor measuring 3.52 x 3.52 x 0.98 inches was discovered in the right labia majora. A diagnosis of endometrial stromal sarcoma was established after the removal of the tumor. Megestrol acetate treatment was started after a negative metastatic workup. She has shown no indicators of recurrence or worsening of her condition in the last 28 months [17].

There were 105 UL patients and 112 controls were tested for five genetic variants using real-time PCR. The 2 and OR values were utilized to analyze the connection between genotype and allele frequencies and UL risk. Multifactor dimensionality reduction calculated genetic polymorphism synergy. Saudi women with the AG genotype for the rs12484776 polymorphism are 2.6 times more likely to have UL (OR, 2.69; 95% CI, 1.45-5.00; P 0.001). This was true even when co-dominant models were included (AA vs. GG + AG [OR, 2.74; 95% CI: 1.48-5.08; P = 0.001; and AG vs. GG + AG [OR, 2.41; 95% CI: 1.33-4.39; P = 0.003). rs1056836, rs7913069, rs2280543, and rs4247357 did not increase disease risk (P > 0.05). rs12484776 increases UL risk in Saudi women, both alone and with other markers (rs2280543, rs7913069, and rs1056836). Our research, which tried to replicate UL genetic susceptibility loci in Europeans and Japanese, found conflicting findings in this geographically and culturally varied Saudi Arabian society [18].

A previously healthy woman in her 40s presented with recurrent cough, right-sided chest discomfort, dyspnea, back pain, and lower leg pain. CT scan revealed a mass in the patient's lower right lung lobe. Bone scans showed lesion-related mobility in the upper and lower limbs, rib cage, and vertebrae. A CT-guided biopsy revealed a leiomyoma. After a right lobectomy, histopathology confirmed the biopsy. Patient complained a persistent cough with watery secretions. The patient received surgery after a CT scan revealed a bronchopleural fistula. Symptoms improved enough to discharge patients. A rare instance of pulmonary leiomyoma, hypertrophic osteoarthropathy, and sterile bronchopulmonary fistula [19].

Minimally invasive thoracic surgery is on the rise and may eventually replace traditional methods of treatment for certain illnesses. Numerous research have shown its advantages over conventional surgery, including fewer complications and shorter hospital stays. Thoracoscopy enucleation of a midesophageal leiomyoma in a patient with MEN I syndrome: a case report with an emphasis on technique [20].

# **Discussion:-**

About 70 percent of all women will develop a benign uterine growth called a fibroid. 15-30% of women seeking treatment [21] need to do so. Treatment plans are tailored to each patient based on factors such as age, hormone levels, reproductive goals, symptoms, and tumor location. Options for surgical treatment range from complete hysterectomy to less invasive procedures such a supracervical hysterectomy or myomectomy. Hysteroscopic electroresection is an effective treatment for submucosal fibroids. Hysterectomy via the vaginal route is the next step. Morcellation using the laparoscopic method is often employed to fragment the lesion or entire uterus before the ultimate extraction of the specimen through minimally invasive procedures or a transvaginal route for the treatment of big (presumed) fibroids. High-intensity focused ultrasound guided by magnetic resonance imaging (MRI) is another nonsurgical alternative to hysterectomy.

Morcellation beyond the laparoscopic bag is an example of an incorrect surgical operation that might cause intraperitoneal tumor cell spillage, worsening the prognosis of already-rare, aggressive tumors such uterine sarcoma [22-24]. As many as 1 in 352 people may get sarcoma out of the blue [25]. National registries in Norway found an incidence of 3.6 per 1000 laparoscopic hysterectomies for uterine sarcoma, with a mortality risk of 1.5 per 1000 surgeries after morcellation [23]. In order to avoid unnecessary surgery in cases when a sarcoma is not first recognized, a preoperative diagnosis is required.

Most primary soft tissue tumors are imaged by magnetic resonance imaging (MRI) [26], which provides an excellent and thorough picture of the size, location, and distribution of leiomyomas. There is substantial overlap in the MRI characteristics of benign degenerating cellular leiomyomas and leiomyosarcomas, making diagnosis difficult [27]. Conventional imaging for retroperitoneal sarcomas is contrast-enhanced computer tomography (CT) [28]. Initially, ultrasonography may be utilized, but if soft tissue sarcoma is suspected, CT or MRI should be used instead [26]. The difference between leiomyoma and malignant uterine tumors cannot be made with certainty using clinical and radiologic criteria [26].

En bloc complete hysterectomy is the gold standard local therapy for localized uterine sarcomas [26]. This may be performed by laparoscopy/assisted or robotic surgery as long as the tumor is removed using the same criteria as for open surgery and morcellation is not performed. Transperitoneal spreading and recurrence of cancer are both made more likely by cellular morphlization and leakage after morcellation [29]. Improvements in preoperative workup are required to reduce the frequency of undetected sarcomas, according to a statement from the European Society of Gynecological Oncology (ESGO) on fibroids and uterine morcellation [25].

In gynecologic oncology, transvaginal core needle biopsy for pelvic malignancies is a common procedure [30-33]. However, it is not explicitly recommended in the preoperative workup for patients with uterine tumors [25]. Avoiding transabdominal core needle biopsy is advised by the recommendations of many sarcoma organisations [26, 28]. The needle canal may also become contaminated with sarcomatous tissue [34]. When a sarcoma is suspected on imaging, a proper pretreatment biopsy must be performed in a safe and sufficient manner [28].

Even if the uterine lining tumor is just one grade, the prognosis is poor for a patient with uLMS. As a result, the WHO and the Gynecologic Oncology Group (GOG) no longer advise rating uLMS. Reports of relapse after 5 years range from 53% to 71%. Overall, even in stage I cancers, Norwegian data suggest a 5-year OAS of little more than 51%, and a 25% OAS in stage II tumors [35]. In contrast to the much poorer OAS (48.4%) for stage IB cancers, the OAS (76.6%) for early-stage tumors (IA) seems to be the only positive prognostic factor. Age, tumor stage, and tumor size are prognostic variables. OAS declines from 76.6% for tumors less than 5 cm in size to 52.9% for tumors between 5 and 10 cm in size, and 41.9% for tumors larger than 10 cm. When the uterine cervix is involved, OAS drops from 55.3% to 28.5% [36]. Additional prognostic markers discussed in this article include free margins, mitotic score, and vascular invasion [37]. The morcellating process unquestionably adds to the poor prognosis [38]. A chest X-ray or CT scan may be warranted due to the prevalence of pulmonary metastases.

# **Conclusion:-**

In conclusion, symptomatic uterine fibroids were effectively treated by deploying an extracorporeal HIFUNIT 9000 tumor treatment system in conjunction with a new single-focus ultrasound source. This has been shown by a significant number of clinical feasibility studies focusing on uterine fibroids. In contrast, high-intensity focused ultrasound (HIFU) might gain broad clinical use if it can maintain or improve fertility more effectively than traditional therapy. Future study will evaluate whether or not the symptoms of fibroid tumors may be relieved by the coagulation of larger amounts, as well as whether or not this impact is long-lasting. Comparing HIFU to other options already on the market, such as UAE, requires more investigation. HIFU is an excellent option to consider for a treatment for fibroids that are located in uterus.

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