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Approaches of Hemorrhoids Prevention: Systematic Literature Review

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Abstract

This review is aiming to discuss the different Approaches used to prevent Hemorrhoids. Present article review was conducted by searching Medline, Embase, Web of Science, Science Direct, BMJ journal and Google Scholar for researches, review articles and reports, published over the past years. Were searched up to November 2020 for published and unpublished studies, and without language restrictions, if several studies had similar findings, we randomly selected one or two to avoid repetitive results. Based on findings and results of this review, increasing the amount of fiber and fluids intake in the diet, avoiding medications that cause constipation or diarrhea, enhancing regular bowel emptying, controlling weight (lose weight if overweight), and exercising regularly would effectively prevent hemorrhoids.

Keywords: *Pain; Hemorrhoids; Measures; Prevention; Constipation*

Abbreviation

CDC: Centers for Disease Control and Prevention

Introduction

Hemorrhoids occurrence can trail to antiquity, the referred of it back to the pre-Christian era and proctology thrived in Ancient Egypt. Today hemorrhoids are one of the common, gastrointestinal tract (GIT) disorders in humans, Because of multiple factors that affect the defecation such, as socio-cultural obstacles, person movement, the prevalence of Hemorrhoids unknown, and the assessment ability is limited [1,2].

In the United States, about 10 million people reported Hemorrhoids incidence by themselves. Peak incidence was reported by both genders from age 45 to 65 years, Caucasians are affected more frequently than African Americans, and higher socioeconomic status is associated with increased prevalence. Despite the low mortality rate of Hemorrhoids, but it significantly affected the quality of life [3].

The theory of Burkitt in the 1970s was widely accepted, which is considered constipation as a major etiologic risk factor for hemorrhoids [1]. Usually, hemorrhoids are used to describe the pathophysiological process of symptomatic hemorrhoid disease which is poorly understood instead of the normal anatomic structure. Hemorrhoids are clusters of vascular tissues, smooth muscles and connective tissues that lie along the anal canal in three columns left lateral, right anterior, and right posterior positions. Currently, the theory of sliding anal canal lining, which proposes that hemorrhoids occur when the supporting tissues of the anal cushions deteriorate, is more widely accepted. Advancing age and activities such as strenuous lifting, straining with defecation and prolonged sitting thought to contribute to

this process. Hemorrhoids are, therefore, the pathological term to describe the abnormal downward displacement of the anal cushions causing venous dilatation [4].

This review is aiming to show the different Approaches used to prevent Hemorrhoids and show its effectiveness, and efficiency.

Materials and Methods

The present review was conducted in November 2020 under the preferred reporting items for systematic reviews and meta-analyses (PRISMA) declaration standards for systematic reviews. We reviewed all the topics on the different Approaches used to prevent Hemorrhoids.

"Our search was completed without language restrictions. Then we extracted data on study year, study design, and key outcome on the different Approaches used to prevent Hemorrhoids".

The selected studies were summarized and unreproducible studies were excluded. Selected data are shown in table 1.

Author and year	Sample	Approach of prevention	Findings
Peery AF., *et al*. 2015 [7].	2,813	Constipation	Constipation is associated with an increased risk of hemorrhoids.
Peery AF., *et al*. 2015 [7].	2,813	Dietary habits	High grain fiber intake and sedentary behavior are associated with a decreased risk of hemorrhoids.
Sielezneff I., *et al*. 1998 [10].	100	Smoking	Our findings provide further arguments suggesting that dietary imbalance or smoking could be involved in the development of hemorrhoids.
Zeinab HA., *et al*. 2011 [11].	90 adults	Hygienic care	Conservative measure has highly statistically significant positive effect in improving the hemorrhoid stages and symptoms of patients used diet and hygienic care or kegel exercise It is recommended to generalize such conservative measures in hospitals for teaching hemorrhoid patient hygienic care, diet, and application of the instructions regarding nutrition, voiding habit and hygienic care in addition to exercise.
Zeinab HA., *et al*. 2011 [11].	90 adults	Exercise	Conservative measure has highly statistically significant positive effect in improving the hemorrhoid stages and symptoms of patients used diet and hygienic care or kegel exercise It is recommended to generalize such conservative measures in hospitals for teaching hemorrhoid patient hygienic care, diet, and application of the instructions regarding nutrition, voiding habit and hygienic care in addition to exercise.

Table 1: *Results from sequencing studies.*

Studies have been rated as being high quality by an established evaluation process based on the DyunaMed criteria and it's based on the level of evidence as follows:

- **Level 1 (likely reliable) evidence:** Representing research results addressing clinical outcomes and meeting an extensive set of quality criteria that minimize bias. Example: Randomized controlled trial/meta-analysis.
- **Level 2 (mid-level) evidence:** Representing results addressing clinical outcomes and using some methods of scientific investigation but not meeting the quality criteria to achieve level 1 evidence labeling. Example: well-designed non-randomized clinical trials.

- **Level 3 (lacking direct) evidence:** Representing reports that are not based on scientific analysis of clinical outcomes. Examples include case series, case reports, expert opinion, and conclusions extrapolated indirectly from scientific studies.

Inclusion criteria

Inclusion criteria were: Current different approaches used to prevent hemorrhoids.

Exclusion criteria

Irrelevant articles [not related to the aim of this review and articles that did not meet the inclusion criteria in this review.

Data extraction and analysis

Information relating to each of the systematic review question elements was extracted from the studies and collated in qualitative tables. Direct analysis of the studies about the different Approaches used to prevent Hemorrhoids.

Results and Discussion

Ganz RA defined Hemorrhoids also known as "Piles" as "distal displacement and venous distention of the hemorrhoidal cushions" [5]. There's lack of evidences and studies about the Hemorrhoids risk factors and the approaches of the prevention [6]. Due to the lack of the evidence and studies we based our search on the risk factors that associated with the development of the Hemorrhoids and the basic idea is to prevent this risk factors to prevent the development the Hemorrhoids. In (1949) Bacon's list number of postulated etiological factors represented most of the suggestions of those who have considered hemorrhoids heredity, anatomical features, nutrition, occupation, climate, psychic factors, senility, endocrine changes, irritation from drugs or food, infection, pregnancy, and increased intra-abdominal pressure by different causes like (violent exercise, constrictive clothing, straining when coughing, sneezing or vomiting) but the specific influence of these factors has remained uncertain [1].

In the parts following we will show studies and report about the risk factor of the Hemorrhoids and recommendations for the approaches for the prevention.

There's many *a*pproaches used to prevent Hemorrhoids, For the purpose of the report we have listed the different approaches in table 2.

1.	Prevention of the constipation.
2.	Dietary habits.
3.	Decrease the use of irritation from drugs or food.
4.	Occupational health measures.
5.	Decrease stress.
6.	Hygienic care and exercise.

Table 2: *Approaches for the development of the hemorrhoids.*

Constipation

Constipation, as we mentioned, it is widely believed that constipation causes hemorrhoid [1]. Studies for both epidemiology and physiology have related hemorrhoids to the size and consistency of stools. Extensive studies in world wild, have related stool size and consistency and intestinal transit times to dietary fibers (Walker, 1947; Burkitt., *et al*. 1972). However, where dietary fiber is deficient, available

evidence suggests that fiber of cereals, and to a lesser extent than legumes, is more effective in restoring gastrointestinal behavior than the fiber of fruits and green vegetables unless these are taken in large quantities. The fundamental cause of constipation held to be the large proportion of calories consumed in the western world in the form of fiber-depleted carbohydrate foods and white flour and sugar in particular. According to those studies means Hemorrhoids are largely preventable [1].

Also, according to the International Life Sciences Institute nutrition review published in 2009" First-line therapy for constipation usually includes increased dietary fiber and fluid intake. Increased fiber intake also appears to be effective for the prevention and management of hemorrhoids. Wheat bran, high-fiber cereals, and fiber supplements are widely used by consumers, which represents common knowledge of their beneficial effects [6].

cross sectional study was conducted to assess the association between the risks factors of the Hemorrhoids and its prevalence; show that "The study included 2,813 participants". Of these 1,074 had hemorrhoids recorded. Constipation was associated with an increased prevalence of hemorrhoids (OR 1.43, 95% CI 1.11, 1.86). Of the fiber subtypes, high grain fiber intake was associated with a reduced risk (OR for quartile 4 versus quartile 1 = 0.78, 95% CI 0.62, 0.98). We found no association when comparing gravid and nulligravida women (OR 0.93, 95% CI 0.62 - 1.40). Sedentary behavior was associated with a reduced risk (OR 0.80, 95% CI 0.65 - 0.98), but not physical activity (OR 0.83, 95% CI 0.66 - 1.03). Neither being overweight nor obese was associated with the presence of hemorrhoids (OR 0.89, 95% CI 0.72 - 1.09 and OR 0.86, 95% CI 0.70 - 1.06)" [7].

Dietary habits

In clinical studies of hemorrhoids, fiber supplement reduced the risk of persisting symptoms and bleeding by approximately 50% but did not improve the symptoms of prolapse, pain and itching. Lifestyle modification should also be advised to any patients with any degree of hemorrhoids as a part of treatment and as a preventive measure. These changes include increasing the intake of dietary fiber and oral fluids, reducing consumption of fat, having regular exercise, improving anal hygiene, abstaining from both straining and reading on the toilet, and avoiding medication that causes constipation or diarrhea [8]. On the other hand, according to a narrative review of a meta-analysis conducted to assess the effectiveness of fiber supplementation for the treatment of constipation in 2019 about 18 meta-analyses support dietary fiber supplementation for patients with constipation [9].

Study conducted to assess the association between the Dietary habits and if it can decrease the occurrence of Hemorrhoids or not, including 100 participant divided in two groups of 50 for the purpose of comparison, found out "Overall calorie intake, as well as protein, carbohydrate and fiber intake were similar in the two groups as were use of salt, coffee and tea. Dietary intake in group I was higher for fat ($p = 0.02$), alcohol ($p = 0.01$), pepper ($p = 0.04$, and pimento ($p = 0.001$). Subjects in group I drank less water ($p = 0.008$), smoked more ($p = 0.01$) and were more often constipated ($p < 0.001$) than those in group II" [10].

Hygienic care and exercise

A quasi-experimental research study design that evaluates the Effect of Conservative Measures in Improving Hemorrhoid Stages and Relieving Symptoms among Patients with Hemorrhoid, conducted in outpatient clinics at Helwan City, Egypt, with a sample of 90 adults complained of hemorrhoid symptoms and having stage one or two of hemorrhoid. Results revealed the severity of the hemorrhoid symptoms and stages among the studied sample in the pre-intervention stage with statistically significant improvements at the post-intervention phase ($p < 0.001$). As well, there were some improvements in hemorrhoid stages in the two studied groups as compared to the control group ($p < 0.001$). There were improvements in the hemorrhoid stages and symptoms among patients in the study group (1) as compared to study group (2) ($p < 0.001$) as a result of kegel exercise provided to patients in the study group (1). These results revealed that conservative measures provided to the patients in the studied groups (1, 2), as well as the provided Kegel exercise followed by patients in

the study group (1), were effective in improving their hemorrhoid's symptoms and stages It is concluded that conservative measure has highly statistically significant positive effect in improving the hemorrhoid stages and symptoms of patients used diet and hygienic care or kegel exercise It is recommended to generalize such conservative measures in hospitals for teaching hemorrhoid patient hygienic care, diet, and application of the instructions regarding nutrition, voiding habit and hygienic care in addition to exercise [11].

Discussion

Hemorrhoids also known as "Piles" is a vascular disease that affect the anal canal which result in the swollen of the vessels [12]. The exact cause of the Hemorrhoids till now it's unknown, however there's many risk factors can contribute in its occurrence.

Hemorrhoids had been classified to stages and grades according to the origin of the affected vessels to external and internal, the internal is classified to four grades depends on the degree of prolapse [13]. On the bases of this classification the approaches of the prevention take place weather to prevent the occurrence of the Hemorrhoids or to prevent its progression to advanced stage or grade.

The core approach in the prevention of the Hemorrhoids is based on the prevention of the Constipation and decrease intra-abdominal pressure [1]. Many approaches prove its effectiveness to prevent Hemorrhoids but on the top come the conservative measure which include (diet and hygienic care or kegel exercise), managing dietary habits is one of the key point especially for the people at risk those between 45 and 65 years of age [13].

Conclusion

Approaches that used in hemorrhoids prevention are mostly such as those used to treat constipation as it's the most significant cause of hemorrhoids and also those used in decreasing of hemorrhoids stage or episodes of hemorrhoids patients, these measures are related to some changes in lifestyle such as Increasing the amount of fiber in the diet and fluids intake to relieve constipation and eliminate straining at defecation, fiber intake make the movement of bowel easier. Increasing aerobic exercises (20 - 30 minutes) can help in regulating bowel function. This involves Kegel exercise, which will strengthen the anal sphincter. And exercising helps increase the movement of stool through the body and prevents constipation. The decrease in straining during bowel movements avoids irritating the inflamed tissue. avoiding certain life habits such as lifting heavy objects, as lifting activities or excessive body weight can make abdominal muscles involuntarily push weak rectal muscles. Subsequently, this will result in prolapsed muscles or muscles that were pushed out of the anal opening. Encouraging fluids dinking of at least 8 glasses of water per day helps soften the stool, as the straining can form hemorrhoids or irritate it if already present.

Conflict of Interest

The authors of this article hasn't receive and support for this work and it was completely self-funded.

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