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Prevalence of Fibromyalgia in Patients at the University Hospital of Cocody-Abidjan in Côte d'Ivoire

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Abstract: Fibromyalgia presents a significant public health challenge, affecting individuals across diverse age groups and genders. Marked by persistent widespread pain, it frequently coexists with symptoms such as fatigue, cognitive impairments, and psychological comorbidities. The dysregulation of the hypothalamic-pituitary-adrenal axis and autonomic nervous system in fibromyalgia underlie the chronic pain, fatigue, sleep disturbances, and mood disorders associated with this condition. Importantly, this pathology not only complicates the prognosis of individuals with psychiatric disorders but also has implications for those with pulmonary conditions. The overlapping symptomatology between fibromyalgia and pulmonary ailments prompted an investigation into the prevalence of fibromyalgia in the pneumophthisiology department at Cocody University Hospital. Our findings revealed a substantial incidence of fibromyalgia within the pneumophthisiology department, indicating an association between the conditions managed in this department and fibromyalgia. This heightened prevalence underscores the necessity for ongoing research and increased awareness regarding potential comorbidities. It highlights the importance of addressing the comprehensive needs of patients, encompassing both their physical and mental well-being. This study illuminates the intricate interplay between diverse pathologies and their potential impact on patient care and management. Consequently, further exploration and collaboration among various medical specialties emerge as essential components in comprehensively addressing the complex needs of individuals grappling with fibromyalgia and related conditions.

Keywords: Fibromyalgia, Prevalence, Pneumophthisiology, Health Condition

1. Introduction

Fibromyalgia is a disorder characterized by widespread musculoskeletal pain accompanied by fatigue, sleep, memory, and mood issues [19]. Researchers believe that fibromyalgia amplifies painful sensations by affecting the way your brain and spinal cord process painful and no painful signals. Symptoms often begin after an event, such as physical trauma, surgery, infection, or significant psychological stress. In other cases, symptoms gradually accumulate with no single triggering event. Little is known about fibromyalgia, but it is generally common in the world's predominantly female population, with a chronic nature present in 11.5% to 52.2% of the adult population [16]. The World Health Organization (WHO) recognized fibromyalgia as a pathology in 1990, classifying it as a soft tissue disorder [14]. This condition has been described under various names, such as "muscular rheumatism," "neurasthenia," or "fibrositis" [11]. It is characterized by chronic, diffuse pain accompanied by a range of symptoms, including unrefreshing sleep, fatigue, mood swings, intestinal irritability, and headaches [20]. Most sufferers are women between the ages of 30 and 50, but men, children, and adolescents can be affected [12]. According to the study, patients who have fibromyalgia have all aspects of

their lives disrupted, gradually or sometimes suddenly, depending on the severity of their symptoms [19]. Respiratory ailments, a real public health problem, constitute the second major cause of consultation in general medicine [14]. Chronic, widespread pain, along with symptoms such as poor sleep, fatigue, mood swings, intestinal irritability, and headaches, characterizes fibromyalgia [20]. The number of in-text citations cannot be used as the sentence components and should be placed at the end.

While most sufferers are women aged 30 to 50, men, children, and adolescents can also be affected [19, 20]. It states that those with fibromyalgia experience disruption in all aspects of their lives, gradually or suddenly, depending on symptom severity. Respiratory issues, a significant public health concern, are the second major reason for general medicine consultations [14]. Fibromyalgia can be challenging to diagnose and treat, as its symptoms can overlap with other conditions. The impact of fibromyalgia on daily functioning and quality of life can be significant, leading to increased healthcare utilization and costs.

Additionally, the lack of understanding and awareness of fibromyalgia among the public and healthcare providers can further exacerbate the challenges faced by individuals living with this condition. As research continues to advance, there is hope for improved recognition, management, and support for those affected by fibromyalgia. These conditions, the most frequent of which are respiratory insufficiency, asthma, pneumonia, tuberculosis, and bronchopneumonia, are extremely serious in Côte d'Ivoire, with a high mortality rate of 21.15% in pneumological hospitalization [6]. Patients suffering from these different respiratory conditions very often complain of chronic pain, general fatigue, and sleep disturbance, which are a triad of major symptoms of fibromyalgia. The similarity of these complaints with patients in the PPH department leads us to ask the following question: Could fibromyalgia not be linked to the pathologies encountered in the Pneumophtisiology (PPH) department? This question led us to assume that fibromyalgia is involved in the suffering of patients in the PPH department. If this hypothesis were verified, the study would enable us to provide better guidance in managing patients suffering from pulmonary disorders. In this context, we set out to determine the prevalence of fibromyalgia in the Pneumophthisiology Department of the Cocody University Hospital.

2. Materials and Methods

2.1. Study Population

This study was conducted on patients visiting the Pneumophthisiology Department of Cocody University Hospital. It included a sample of 171 patients of both genders (men and women) aged between fifteen (15) and seventy-six (76) years.

2.2. Technical Equipment

The survey was conducted using the following technical equipment:

1. Individual health records were utilized to gather information on patients' medical histories.
2. A survey form (see the appendix) was employed to collect additional patient symptom details.
3. A computer equipped with office software was utilized for data processing.

3. Methods

3.1. Type of Study

This cross-sectional, explanatory epidemiological study was conducted using a questionnaire over three months from May to July 2023, involving 171 patients in the Pneumophthisiology Department. The study aimed to identify cases of fibromyalgia among patients in the Pneumophthisiology Department.

3.2. Study Design Criteria

3.2.1. Inclusion Criteria

Patients of any age and gender who provided informed consent and exhibited clinical signs and radiological images of any disease managed in the Pneumophthisiology Department were included.

3.2.2. Exclusion Criteria

Participants who did not furnish informed consent were excluded from the study. This exclusion was essential to guarantee that all study participants were fully aware of the potential risks and benefits of participating in the research.

3.3. Survey

A Survey Form Was Created for This Study, Consisting of 4 Parts

1) The respondent's identity;
2) Medical history;
3) Pathological associations,
4) The questionnaire FIRST (Fibromyalgia Rapid Screening Tools) to detect fibromyalgia in patients [17]. It comprises 6 questions to which patients answer "yes" or "no". Fibromyalgia patients have at least 5 "yes" answers. (Survey form) Appendix.

3.4. Statistical Analyze

The survey data collected earlier were processed using GraphPad Prism software version 10.0.1(218). The variables are expressed as percentages. The Pearson Chi-square test based on theoretical numbers was employed to compare the variables between the diagnosis of fibromyalgia and the various situations in the Pneumophthisiology department. A p-value less than 0.05 was considered statistically significant. Additionally, Excel software was used to generate the graphs.

4. Results

4.1. Socio-Demographic Data of Respondents from the Pneumophtisiology Department

During our research, we interviewed 171 patients ranging from 15 to 76 years old. The predominant age group was between 34 and 56 years, constituting 57% of the overall participants (98 individuals). Within the patient cohort, 53.22% were male (91 individuals), and 46.78% were female (80 individuals). Regarding professional status, 82 patients were employed (actively engaged in a profession), while 89 were not (Table 1).

4.2. Distribution of Respondents by Pathology

The study enrolled 45 individuals diagnosed with tuberculosis, comprising 21 males (46.66%) and 24 females (53.33%). Additionally, 124 patients diagnosed with acute respiratory infections were included, encompassing 68 males (54.83%) and 56 females (45.16%). The cohort also featured 22 patients with asthma, consisting of 5 males (22.72%) and 17 females (77.27%) (Table 2).

4.3. Prevalence of Fibromyalgia

Among the 171 patients in the Pneumophthisiology department, 126 received a diagnosis of fibromyalgia, constituting 74%, while the remaining 45 patients did not exhibit signs of fibromyalgia, representing 26% (Figure 1).

4.4. Prevalence of Fibromyalgia According to Sociodemographic Parameters

4.4.1. Prevalence of Fibromyalgia as a Function of Age

The patient's average age was 35 and was categorized into 3 age groups: group 1 (15 to 33 years), group 2 (34 to 56 years), and group 3 (57 to 76 years). Fibromyalgia was most prevalent in the second age group, with 90.81% affected, followed by 66.66% in group 3, and 54.83% in group 1 (Figure 2).

4.4.2. Fibromyalgia Prevalence by Gender

The survey results indicate a gender imbalance, with 55 men (60.4%) and 36 non-fibromyalgia sufferers (39.6%) found. For women, 71 (88.75%) had fibromyalgia and 09 (11.25%) did not (Table 3).

4.4.3. Prevalence of Fibromyalgia According to Occupational Status

The study's survey showed an even distribution of fibromyalgia sufferers based on professional status. Out of 171 patients, 82 were employed, with 61 of them being fibromyalgia sufferers (74.39% FM and 25.6% NFM - 21 patients). 89 patients were unemployed, with 65 of them being fibromyalgia sufferers (73.03% FM and 26.96% NFM - 24 patients) (Table 4).

4.4.4. Prevalence of Fibromyalgia by Pathology

Fibromyalgia manifested across various pathologies within the department, exhibiting varying prevalence rates. Out of 171 subjects, 126 tested positive for fibromyalgia. The findings suggest a notable association between fibromyalgia and acute respiratory infections among patients. Specifically, the survey revealed 94 cases of fibromyalgia among 124 individuals diagnosed with acute respiratory infections, resulting in a prevalence rate of 75.80%. Despite their smaller representation (21 out of 22 patients), asthma patients exhibited a higher rate of 95.45% with comorbid fibromyalgia. Additionally, tuberculosis patients displayed a substantial rate of 86.66%, encompassing 39 cases of fibromyalgia out of 45 tuberculosis patients. The statistical analysis indicated a correlation between fibromyalgia and pathologies within the pneumophthisiology department at the University Hospital of Cocody ($X2=12.46$; $p=0.025$) (Table 5).

5. Discussion

The epidemiological survey conducted at Cocody University Hospital in the Pneumophthisiology Department involved interviews with 171 patients aged 15 to 76. These patients sought care at the Pneumophthisiology Department for various reasons, including pleurisy, pneumonia, and tuberculosis. Many of them were found to be unknowingly experiencing fibromyalgia, a condition characterized by chronic pain rooted in dysfunction of the hypothalamic-pituitary-adrenal axis [2, 3]. The dysfunction of this axis may explain the chronic diffuse pain, fatigue, mood disorders, and sleep disturbances reported by individuals with fibromyalgia, all of which can contribute to or exacerbate hormonal dysfunction [1].

The study revealed a predominance of fibromyalgia in female participants (88.75%) compared to male subjects (60.4%). According to the literature, fibromyalgia predominantly affects women, with over 90% of cases occurring in females [21]. This gender difference is attributed to the influence of sex hormones, such as estrogens and progesterone, in the development of the disease in women [4]. A study on people living with fibromyalgia found deficient diffuse inhibitory nociceptive controls (DINCs) during the follicular (low estrogen and progesterone levels) and ovulatory (high estrogen, low progesterone levels) phases of the ovarian cycle, affecting pain perception and modulation.

The prevalence of chronic pain in women is also observed globally, including in Europe [8]. Generally, women have a lower pain threshold than men, which may vary during the menstrual cycle and pregnancy [18]. During gestation, with increased estrogen and progesterone levels [9], the pain threshold also rises [5]. Fluctuations in sex hormones during the menstrual cycle may be linked to pain. A survey disclosed a high prevalence of fibromyalgia, reaching 90.81% in the 34 to 56 age group. These findings align with a study of the French population aged 15 to 91, indicating that fibromyalgia is rare before the age of 24 and most prevalent in the 45 to 54 age group [10]. The elevated prevalence in this age group may be associated with weakening the immune system,

leading to the gradual relaxation of the body's protective mechanisms at this stage of life.

The survey results also indicated a correlation between fibromyalgia and the pathologies observed in the Pneumophthisiology Department. Out of the 171 registered patients, 126 were diagnosed with fibromyalgia, representing a rate of 73.68%. The prevalence of fibromyalgia within the department varied depending on the pathology, with rates of 95.45% in asthmatic patients, 86.66% in tuberculosis patients, and 75.8% in subjects with acute respiratory infections. Asthma patients often exhibit extra-pulmonary symptoms that are similar in type and pattern to those of fibromyalgia. According to Martinez (2003), fibromyalgia might be considered a risk factor for asthma. The findings of the current study concerning tuberculosis ($p=0.025$) and acute respiratory infection ($p=0.025$) indicate a strong correlation between these conditions and fibromyalgia. The chi-square test confirms the high significance of these results. However, the literature suggests that there is no direct correlation between these conditions and fibromyalgia, implying that all conditions, including tuberculosis, acute respiratory infection, and even fibromyalgia, may be influenced by social factors and infections. Fibromyalgia is a medical condition characterized by widespread muscle pain and other symptoms of the central nervous system [7], while acute respiratory infection refers to an infection of the respiratory tract, and tuberculosis is an infectious disease caused by the bacterium Mycobacterium tuberculosis, primarily affecting the lungs [15]. Therefore, there is no direct link between these diseases. Analysis of the occupational situation of fibromyalgia patients yields mixed results. Half of fibromyalgia patients are employed, while the other half are not. This could be partly explained by the lack of awareness of fibromyalgia in the Ivorian medical community, potentially contributing to a prolonged period of medical uncertainty that only patients with a substantial income could endure [13].

6. Conclusion

The study underscores a significant presence of fibromyalgia in the PPH department, with prevalence rates of 86.66% among tuberculosis patients, 75.80% in those with acute respiratory infections, and 95.45% in asthmatics. Recommendations for future research include extending the study duration to enhance understanding of fibromyalgia in the PPH department and improving diagnostic methods and systematic screening across all departments at the University Hospital of Cocody. The high prevalence of fibromyalgia in PPH patients emphasizes the importance of addressing this condition in healthcare. Through ongoing research and systematic screening, healthcare providers can effectively identify and manage fibromyalgia in patients with diverse underlying conditions, ultimately advancing patient outcomes and improving the quality of care at the University Hospital of Cocody.

Authors' Contributions

GKL and NO participated in manuscript revisions. AKB and AY were involved in the study design. AY and KAJ conducted all data collection and analyses.

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Conflicts of Interest

The authors declare no conflicts of interest.

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