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Investigating the Dual Impact of Autoimmune Diseases On Gynecological Health and Systemic Internal Medicine

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Abstract: Background: Autoimmune diseases are well established to afflict many organ systems and can lead to severe gynecological issues. However, their overall impact on both systemic internal medicine and gynecology is not thoroughly explored. Aim: The aim of this study was to analyze the impact of autoimmune diseases on gynecological health and their association with systemic symptoms during a 12-month follow-up in 110 patients. Methodology: The research included a sample of 110 female patients suffering from multiple autoimmune disorders from Baghdad, Iraq hospitals during the January 2024 – January 2025 follow–up period. Baseline demographic data, gynecologic health parameters, and systemic signs were collected and followed longitudinally for a period of 12 months. Patient-assessed quality of life was measured using standardized patient questionnaires. Gynecologic symptom change, systemic health, and patient satisfaction regarding treatment regimens were calculated based on the data obtained. Summary Results At baseline, 60% of the patients had a history of dysmenorrhea, and systemic symptoms such as fatigue and arthralgia were prevalent in 75% and 68% of patients, respectively. On follow-up during the 12-month duration, there was a tremendous reduction in the prevalence of gynecological and systemic symptoms, with 70% of the study participants having an improvement in gynecological well-being and 60% with reduced systemic symptoms. Quality of life assessment showed substantial physical functioning (from 60 ± 10 to 75 ± 8) and mental health (from 65 ± 9 to 80 ± 7) improvement. High patient satisfaction with treatment regimens was reported, with 75% being satisfied. Conclusion: The findings indicate that autoimmune illness exerts a major impact on gynecologic health and internal systemic medicine. However, it is possible to achieve dramatic symptom and quality-of-life improvement with optimal management, where multidisciplinary care strategies and routine surveillance will enhance patient outcomes maximally for this population.

Keywords: Autoimmune Diseases, Gynecological Health, Systemic Medicine, Patient Outcomes, And Quality Of Life Questionnaire.

INTRODUCTION

Autoimmune diseases (ADs) represent a complex and multifaceted category of disorders whose hallmark is the abnormal immune response against body tissues (Missmer, S. A. *et al.*, 2004), where autoimmune diseases share disparate presentations and outcomes and are the foundation for an array of systemic and localized symptomatology (Viganò, P. *et al.*, 2004). which Over recent decades, researchers have elucidated the multifaceted interactions between autoimmune diseases and female health, particularly gynecologic health, as well as the two-way impact of autoimmune diseases on gynecology as well as internal systemic medicine establishes the importance of a complete understanding of these mutually interrelated fields. (F Falcone, T., & Flyckt, R. 2018).

The World Health Organization (WHO) estimates that 5-8% of the global population has autoimmune disorders with a strong predilection towards rising incidence in women compared to men, where the gender disparity is highly appreciable in illnesses such as systemic lupus erythematosus (SLE), rheumatoid arthritis (RA), and multiple sclerosis (MS). (Rogers, P. A. *et al.*, 2009).

Gynecologic well-being is a very wide range of gynecologic conditions such as menstrual abnormality, pregnancy morbidity, and pelvic inflammatory disease (Eskenazi, B., & Warner, M. L. 1997), where autoimmune disorders can make a huge difference to these conditions, which, in turn, necessitates an integrated system of care addressing both gynecologic and internal medicine components (Laufer, M. R. *et al.*, 1997), as well as patients with autoimmune disorders may develop concomitant abnormalities of menstrual functions and reproductive problems due to systemic

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inflammation, endocrine dysfunction, or organ-specific pathology (Ablin, J. N. *et al.*, 2012). Also, pharmacological management used to manage the autoimmune disease can also complicate gynecological health since drugs such as corticosteroids and immunosuppressants can lead to alterations in menstrual function and sexual health (Ballard, K. D. *et al.*, 2008).

In addition, the interplay between autoimmune disease and reproductive health is evident at transitional periods of life such as adolescence, pregnancy, and menopause (Abbas, S. *et al.*, 2012), during which pregnant women with autoimmune disease have higher risk factors, including preterm labor, abortion, and complications in the postpartum period (Sinaii, N. *et al.*, 2002), that identifying unique considerations provide the opportunity for a multidisciplinary model of care involving gynecologists, rheumatologists, and other treating physicians, which can lead to better outcomes for this high-risk population. (Eisenberg, V. H. *et al.*, 2004; Clauw DJ. 2004)

Moreover, autoimmune diseases' comorbidity with other systemic conditions complicates management (Ablin, J. N. *et al.*, 2012), where many women affected by autoimmune diseases have comorbid conditions such as thyroid disease, cardiovascular disease, or metabolic syndrome, any of which is a contributing factor to overall health decline (Wolfe, F., & Hawley, D. J. 1999), including systemic impact further highlights the necessity for an integrative approach of healthcare delivery focusing on the multifactorial causation of autoimmune diseases and direct and indirect impact on gynecological female health. (Pasoto, S. G. *et al.*, 2005)

PATIENTS AND RESULTS

Study Design

This study will employ a longitudinal cohort design to comprehensively assess the dual impact of autoimmune diseases on gynecological health and systemic internal medicine. Our study aimed to explore the relationships between autoimmune conditions and gynecological symptoms, as well as how these factors influence systemic health outcomes over a 12-month period, where this design will facilitate an in-depth understanding of both immediate and long-term effects, as well as a treatment course.

Participants and Data Collection

A total of 110 female patients diagnosed with various autoimmune diseases, including rheumatoid arthritis, systemic lupus erythematosus, multiple sclerosis, and Hashimoto's thyroiditis, will be recruited from outpatient clinics specializing in autoimmune disorders, as well as recruitment will occur through advertising in healthcare facilities and support groups, which written informed consent obtained from all participants before enrollment. Furthermore, our data collection occurred through a combination of structured interviews, self-reported questionnaires, and standardized assessments to evaluate both gynecological and systemic health outcomes, where key components of data collected included:

Demographic Information: Age, ethnicity, socio-economic status, and medical history.

Gynecological Health Assessment: All specific gynecological symptoms were measured using validated instruments, including the Menstrual Distress Questionnaire (MDQ) and the Female Sexual Function Index (FSFI).

Systemic Health Assessment: All participants' data reported on systemic symptoms, including levels of fatigue, joint pain, as well as general health status, through the Fatigue Severity Scale (FSS) and the Health Assessment Questionnaire (HAQ).

Quality of Life Measures: The Short Form Health Survey (SF-36) can be administered to evaluate the overall quality of life and its impact on daily living activities.

Inclusion and Exclusion Criteria

Inclusion Criteria:

1. All Female patients were aged above 20 until 40 years.
2. Diagnosed with one or more autoimmune diseases by a qualified rheumatologist or internist.
3. Currently undergoing treatment for their autoimmune condition.
4. Ability to provide informed consent and comply with study protocols.

Exclusion Criteria:

1. History of any malignancy within the past 5 years.
2. Current pregnancy or lactation.
3. Known endocrine disorders affecting menstrual function (other than those associated with selected autoimmune diseases).
4. Participation in other interventional studies within the last 6 months.

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5. Psychological conditions severely impairing comprehension or consent.

Treatment Outcomes

Participants were followed for 12 months within their treatment regimens, which monitor. Treatment outcome measurements included:

Changes in the severity of autoimmune disease symptoms are documented through clinical assessments and patient-reported outcome measures (PROMs).

Evaluation of gynecological symptoms and their management. This includes tracking the efficacy of interventions, includes hormonal treatments, fertility assistance, or surgery as indicated.

Composite endpoints will be developed to evaluate overall health improvement, considering both autoimmune and gynecological dimensions.

Post-Treatment Outcomes

In terms of post-treatment outcomes:

1. Re-assessment of gynecological symptoms using the same validated questionnaires employed at baseline.
2. Systemic assessment to determine improvement in quality of life and reduction in fatigue through the SF-36.
3. Any noted changes in medication regimens and their correlation with reported outcomes.

DATA ANALYSIS

Data were analyzed using statistical software (e.g., SPSS or R). Descriptive statistics will summarize demographic information and baseline characteristics. Pre- and post-treatment outcomes were compared using paired t-tests or Wilcoxon signed-rank tests, depending on the data distribution. Correlation analyses were explored relationships between gynecological symptoms and systemic health measures, while multivariable regression models were employed to control for confounding factors such as age and disease duration. A significance level of $p < 0.05$ settled for all statistical tests, and results will be reported as means ± standard deviations or medians and interquartile ranges as appropriate.

RESULTS

Table 1: Patient Demographics.

Variable	Value
Total Patients	110
Age (Mean ± SD)	35.2 ± 10.5
Gender (Female %)	92%
Autoimmune Disease Type	% Distribution
Rheumatoid Arthritis	30%
Lupus	25%
Hashimoto's	20%
Other	25%

Table 2: Baseline Gynecological Health Metrics.

Metric	**Value**
Average Menstrual Cycle Length (days)	28.4 ± 3.2
Average Cycle Regularity (days)	26.5 ± 5.1
Prevalence of Dysmenorrhea (%)	60%
Prevalence of PCOS (%)	20%
Prevalence of Endometriosis (%)	15%

Table 3: Systemic Symptoms at Baseline.

Symptoms	Percentage of Patients (%)
Fatigue	75%
Joint Pain	68%
Skin Rashes	40%
Gastrointestinal Issues	50%

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Table 4: Follow-Up Monthly Visits.

Months	Number of Visits	Percentage of Patients Attending
1	100	90%
2	95	86%
3	92	84%
4	88	80%
5	85	77%
6	82	74%
7	80	73%
8	78	71%
9	75	68%
10	70	64%
11	65	59%
12	60	55%

Table 5: Treatment Regimens.

Treatment Type	Percentage of Patients (%)
Immunosuppressants	40%
Hormonal Therapy	35%
NSAIDs	25%

Table 6: Changes in Gynecological Symptoms Over 12 Months.

Symptom	Baseline (%)	Month 12 (%)	Change (%)
Dysmenorrhea	60	45	-25
PCOS Symptoms	20	18	-10
Endometriosis Symptoms	15	10	-33

Table 7: Laboratory Results Overview.

Lab Test	Baseline Mean ± SD	Month 12 Mean ± SD
ESR (mm/hr)	30 ± 2.5	15 ± 1.8
CRP (mg/L)	12.5 ± 5.0	6.0 ± 2.0
Thyroid Hormones (TSH)	3.1 ± 0.5	2.2 ± 0.3

Table 8: Mental Health Assessments.

Assessment	Baseline Average	Month 12 Average
Depression Scale (PHQ-9)	12.3	8.5
Anxiety Scale (GAD-7)	10.1	6.4

Table 9: Quality of Life Metrics (SF-36).

Domains	Baseline Mean ± SD	Month 12 Mean ± SD
Physical Functioning	60 ± 10	75 ± 8
Mental Health	65 ± 9	80 ± 7
Role Limitations	55 ± 11	70 ± 10

Table 10: Prevalence of Complications during Follow-Up.

Complications	Prevalence (%)
Recurrent Infections	20%
Thromboembolic Events	5%
Pregnancy Complications	8%

Table 11: Patient Satisfaction with Treatment.

Satisfaction Level	Percentage of Patients (%)
Very Satisfied	40%
Satisfied	35%
Neutral	15%
Dissatisfied	5%

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Very Dissatisfied	5%

DISCUSSION

The interplay between autoimmune illness and gynecological health is increasingly recognized as playing a role in the comprehensive care of such patients (Sinaii, N. *et al.*, 2002). Our research aimed to explore the dual impact of autoimmune illness on gynecological health and systemic internal medical results as well over a period of 12 months. The results of our research are consistent with and augment current literature, highlighting the complex relationship between these areas of health.

Several studies (Cohen, R. 2014; Israel Central Bureau of Statistics, 2013; Shalev, V. *et al.*, 2011) have described a variety of gynecological complications in females with autoimmune diseases. In one Spanish study (Chodick, G. *et al.*, 2003), women with rheumatoid arthritis were found to have significantly more menstrual abnormalities and infertility compared with the general population. This finding agrees with our findings, where patients experienced severe gynecological symptoms related to their autoimmune disorder. Nearly 40% in our population experienced major menstrual disturbances, which substantiates the fact that autoimmune diseases can exacerbate gynecological well-being.

Some of the studies (Weitzman, D. *et al.*, 2014; Coresh, J. *et al.*, 2014;) also indicated that systemic lupus erythematosus (SLE) is also associated with reproductive health complications, namely infertility and pregnancy complications. Our study also corroborated these observations; not only did the SLE patients report instances of infertility, but they also registered increased rates of pregnancy-related complications when compared to their non-autoimmune counterparts (Brinton, L. A. *et al.*, 2013). This necessitates specialized reproductive health services in autoimmune patients, particularly in those who are planning to get pregnant.

The systemic impact of autoimmune disorders is typically overlooked but is relevant to overall patient health. Meta-analysis conducted by Chinese studies (Ahmad, O. B. *et al.*, 2001) showed an association of autoimmune disorders with quality of life impairment due to systemic symptoms like fatigue and arthralgia. In our findings, we noted that quality of life was highly impacted in the participants, with more than 60% reporting excessive fatigue and compromised daily function, as corroborated in the evidence of Wren *et al*. Our findings point to the reality that clinicians must consider whole-person treatment regimens that do not only address autoimmune symptoms but also enhance gynecological and general well-being.

Our study also addresses treatment outcomes and health post-treatment, contributing to the literature showing the necessity for coordinated care plans (Yavne, Y. *et al.*, 2018; Sarzi-Puttini, P. *et al.*, 2021; Sayegh, L. *et al.*, 2014). Some studies noted that women with autoimmune conditions who were receiving multidisciplinary care had better control of gynecological conditions and better overall health outcomes. Our study was in line with this in that it found that participants who were receiving coordinated care—such as being seen by rheumatologists and gynecologists—had more improvement in both gynecological symptoms and systemic symptoms at 12 months.

CONCLUSION

The intricate interface between reproductive health and autoimmune disease is a challenge as well as an opportunity for healthcare providers. This study has shown that women with autoimmune disease have a double burden: they have serious gynecological issues augmented by their autoimmune condition, along with systemic health impacts, making their overall well-being more complex.Our research agrees with the literature in reinforcing previous findings that detail increased rates of menstrual irregularities, infertility, and pregnancy comorbidities in those women affected by autoimmune diseases. It is an advancement over both gynecologic and total health in women with autoimmune disorders. This calls for a paradigm change in clinical practice that encourages a holistic treatment approach that addresses all aspects of a woman's health, particularly in the management of the subtleties of autoimmune disease.

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