ISSN: 3107-4707
DOI: doi.org/10.51219/JMMS/Dervis-V/11

URF PUBLISHERS
connect with research world

Journal of Medicine and Medical Studies
https://urfpublishers.com/journal/medicine-medical-studies

Vol: 2 & Iss: 2

Case Report

Case Study: Primary Care Management of Multimorbidity in a 47-Year-Old Woman with Complex Health Needs

Vefa Dervis[1], Atef Darwish[2] and Dina Darwish[3]

[1]Professor emeritus of Pulmonology, Assiut University, Assiut, Egypt

[2]Professor emeritus of Obstetrics and Gynecology, Assiut University, Assiut, Egypt

[3]Specialist of Obstetrics and Gynecology, Assiut University, Assiut, Egypt

Citation: Dervis V, Darwish A, Darwish D. Primary Care Management of Multimorbidity in a 47-Year-Old Woman with Complex Health Needs. *J M Med Stu 2025;* 2(2): 137-140. DOI: doi.org/10.51219/JMMS/Dervis-V/11

Received: 05 May, 2025; **Accepted:** 19 May, 2025; **Published:** 21 May, 2025

***Corresponding author:** Vefa Dervis, MSc MD, Professor emeritus of Pulmonology, Assiut University, Assiut, Egypt, Consultant of Pulmonology, Doha, Qatar, Tel: 097477741504, Email: wafaagadallah@yahoo.com

ABSTRACT

Multimorbidity is a challenging situation exhausting primary health care. This case study highlights the management of a 47-year-old woman with multiple chronic illnesses including gynaecological problems. Her successful multidisciplinary management plan emphasized the need for ongoing monitoring through primary care, and family involvement. The improved prognosis of this case impacts both primary and specialist collaborative treatment to preserve her functional status and quality of life. In primary care, managing multimorbidity requires a clinically robust and patient-centred multimodal approach. Enhancing outcomes in this complex patient population necessitates a meticulously planned care strategy, ongoing surveillance, continuous modification of the treatment plan including selecting appropriate targets and de-escalation of therapy.

Keywords: Multimorbidity; Multidisciplinary; Primary care and Patient-centred

1. Introduction

Coexistence of two or more chronic illnesses in one person is considered a multimorbidity. One approach to managing a patient's care across specialties more efficiently is for a primary care physician (PCP) to integrate multiple specialty coordination. The primary care physician (PCP) and other Specialities should work together to address the whole patient. In terms of pathophysiology and treatment plans, multimorbidity is made worse by the requirement to take into account not just the individual diseases but also how they interact[1]. Common comorbidities such as diabetes, hypertension, and hypothyroidism increase the risk of adverse outcomes, including cardiovascular disease, kidney dysfunction, and metabolic disorders[2,3]. Effective interdisciplinary collaboration is necessary to manage such situations, as it not only requires clinical expertise but also a coordinated approach to address the emotional and physical components of treatment[4]. A detailed assessment is essential to ensure an accurate diagnosis and to develop an effective treatment plan that addressed both the patient's acute symptoms and her underlying chronic diseases. This case also highlights the value of patient-centred care, in which the patient and their family actively participate in the decision-making and treatment options in respect to the patient's preferences, values, and health objectives[5].

2. Case presentation

In the presence of hypertension (HTN), Type 2 diabetes

mellitus (T2DM), hypothyroidism, dyslipidaemia, and vitamin D deficiency, a 47-year-old woman arrived at the emergency department (ED) with the primary complaint of dizziness, accompanied by symptoms of fatigue and light-headedness. She also experienced prolonged menstrual bleeding during her most recent cycles that went undiagnosed. A comprehensive and detailed diagnostic approach was necessary given her significant medical history. At the start, it was thought that her new symptoms were due to her chronic conditions. Due to the patient's numerous medical issues, a variety of specialists had to be consulted, and the management strategy had to be modified as new facts and symptoms emerged.

Her mild anaemia, which manifested as a haemoglobin level of 10 g/dL and low serum ferritin **(Table 1, Figure 1)**, was explained by menorrhagia. According to pelvic ultrasonography she had multiple uterine fibroids, the largest of which measured 5 cm. Consequently, the care plan was then modified to prioritize gynaecological management of bleeding from uterine fibroids. This modification ensured that the underlying cause of her symptoms was properly targeted while considering her broader multiple chronic health needs. Following that, the patient was referred for a hysteroscopy, specialized coordination, for additional evaluation and, if necessary, consideration of surgical options. At 11.7 g/dl, her follow-up haemoglobin level after 3 months remained steady.

Interdisciplinary cooperation with specialists was crucial, involving gynaecology, endocrinology, haematology, dietetics, and primary care. By actively participating in care discussions, the patient and her family made sure that treatment choices closely matched her comfort level and personal health objectives, so enhancing the efficacy of patient-centred care. Over three months period of time, this collaborative approach successfully managed her multimorbidity, leading to improved test results, as shown in **(Table 1, Figure 1)**. Her treatment regimen included ACE inhibitors, levothyroxine, high-dose vitamin D3, ferrous sulphate supplements, along with SGLT2 inhibitors and Biguanide to improve her glycaemic control. This patient-centred collaborative approach contributed to both her physical well-being and her satisfaction with the care process.

Table 1: Changes in Blood Pressure, BMI, and Laboratory Parameters After 3-Month Management.

	13/2/2024	18/5/2024
HbA1c %	8.2	6.9
Fasting blood glucose mmol/L	11.2	5.8
Total Cholesterol mmol/L	5.18	2.4
Triglycerides mmol/L	2.49	1.6
Thyroid stimulating hormone (TSH) IU/ml	6.5	2.5
Vitamin D ng/ml	18	35
Hemoglobin g/dl	10	11.7
Serum Ferritin ng/mL	8	30
Blood pressure	160/100	135/84
BMI	31.84	31.36

Her treatment included a comprehensive medication regimen, necessitating careful monitoring for interactions. Disease-Disease Interaction challenges include compounded cardiovascular risks. For example, uncontrolled hypertension increases the risk of diabetic consequences, such as cardiovascular complications, while diabetes aggravates hypertension by increasing blood volume and adding to arterial stiffness. The choice between management approaches that treat both issues at the same time are required for this cycle. Similarly, uncontrolled diabetes can cause nephropathy, which can lead to proteinuria and impaired kidney function. A continuous cycle of deteriorating renal and cardiovascular outcomes is created when this renal impairment raises blood pressure even more. Moreover, hypothyroidism-induced weight gain, intensifies insulin resistance and complicates glycaemic management. Because of this interaction, thyroid dysfunction must be carefully managed to enhance metabolic results.

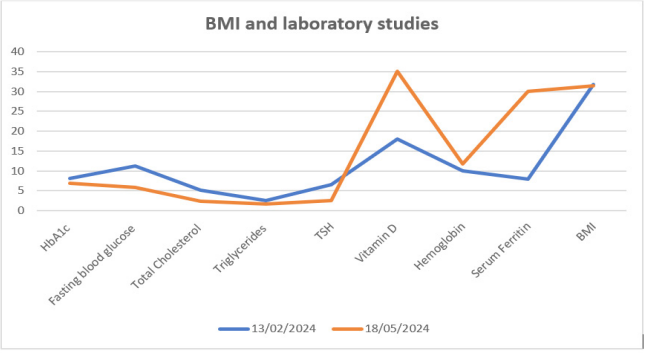

Figure 1: Changes in BMI, and Laboratory Parameters After 3-Month Management.

To manage her multimorbidity disease complex, she must avoid certain group combinations due to drug-drug interaction issues. Beta-blockers are drugs used to treat high blood pressure. They may make it harder to see tachycardia, which is an important sign of hypoglycaemia. To maintain glycaemic control, thiazide diuretics may cause blood glucose levels to rise, requiring changes in the dosages of antidiabetic medications. When SGLT2 inhibitors and diuretics are prescribed together, dehydration and volume depletion are more likely to happen. This means that the fluid status must be closely monitored. Because ACE inhibitors raise potassium levels, hyperkalaemia is more likely to occur. This may worsen renal function when used with metformin, requiring frequent monitoring of potassium levels and renal parameters. Furthermore, iron supplements may hinder levothyroxine's absorption, decreasing its effectiveness. To maximize absorption and therapeutic results, a 4-hour gap between these drugs is advised. Medication reconciliation entails routinely reviewing and modifying prescriptions to prevent interactions, protect the kidneys, and meet treatment objectives for all illnesses. Patient education places a strong emphasis on the significance of following recommended time intervals between drugs (such as levothyroxine and iron) and identifying early signs of possible side effects, such as hypokalaemia or dehydration. To decrease risks and direct therapeutic modifications, routine follow-up and laboratory assessments (such as renal function, electrolytes, serum potassium, glucose levels, and thyroid function) are crucial.

Changes in lifestyle focus on consuming less sugar and carbs, eating more foods high in vitamin D, and getting enough sun exposure. Consuming foods high in iron and vitamin C will also improve absorption. Encourage heart-healthy diets that are rich in fibre as well as healthy fats. Consider that thyroid hormone replacement therapy may not have a substantial effect on weight loss. Techniques for managing stress, increased exercise, and routine follow-up monitoring are recommended.

3. Discussion

This case highlights the intricate nature of managing a patient with multiple chronic conditions, a scenario increasingly common in primary care. The patient's complex medical history, including hypertension, Type 2 diabetes mellitus, hypothyroidism, dyslipidaemia, vitamin D deficiency and anaemia due to uterine fibroids, required a dynamic, individualized approach to care. Several key aspects of the case are worthy of further discussion, particularly in terms of multimorbidity management, interdisciplinary collaboration, drug interactions and the importance of patient-centred care.

3.1. Multimorbidity management

Patients in their middle years or later in life often experience multiple medical conditions, which can be challenging for healthcare providers to manage. When addressing numerous chronic disorders, it is crucial to consider how each disease interacts with each other. The patient's risk of cardiovascular events, kidney impairment and metabolic imbalances was increased by the existence of diabetes, hypertension, hypothyroidism and dyslipidaemia. A complicated clinical picture formed as a result of the tendency for each disorder to worsen the others, necessitating continual re-evaluation. If the patient's hypertension wasn't under control, it could have worsened their diabetes and kidney function. When a patient's presenting symptoms are similar to those of her chronic diseases, it is crucial to conduct a comprehensive investigation. Since this instance considers both the immediate needs (such as anaemia and fibroids) and the long-term care of many chronic disorders, it exemplifies the value of coordinated care[6].

3.2. Interdisciplinary collaboration

Specialists in several fields of health can help a patient with a complex health profile. For example, endocrinology can help with diabetes and thyroid issues, gynaecology can help with menorrhagia caused by fibroids, haematology can help with anaemia and primary care can help with overall coordination. The decision to change the management focus to the gynaecological treatment of the fibroids, rather than further invasive investigation into anaemia, was a significant illustration of how specialists can collaborate to customize treatment to the patient's changing requirements. This coordination of care not only resulted in more efficient treatment but also prevented the need for unnecessary tests or interventions.

Furthermore, the patient's situation necessitates the integration of lifestyle modification and dietetics. This collaborative approach guarantees that all aspects of the patient's health are being addressed simultaneously, which is essential for managing diabetes and cardiovascular risk factors. The opportunity for patient education on self-management is provided by regular follow-up appointments with multiple specialties, which also enable real-time adjustments to treatment plans[7].

3.3. Drug Interactions and Safety Concerns

This case also underscores the complexity of pharmacological management in patients with multimorbidity. The medications prescribed were comprehensive, addressing various aspects of her health, but they also presented significant potential for drug-drug interactions. As described in the case, careful consideration had to be given to the potential adverse effects of combining specific drugs, such as ACE inhibitors with metformin (risking renal dysfunction), beta-blockers with sulfonylureas (increasing the risk of hypoglycaemia) shift to SGLT2 inhibitors and biguanides dual therapy and iron supplements with levothyroxine (impairing absorption).

These interactions were effectively managed through the implementation of regular medication reconciliation, dosage adjustments and the distancing of specific medications (e.g., a four-hour interval between iron and levothyroxine administration). The treatment regimen's safety was contingent upon the meticulous monitoring of kidney function, electrolytes and blood glucose levels. This highlights the importance of not only selecting the most suitable medications but also undertaking continuous reviews of the patient's drug regimen to prevent negative interactions and enhance therapeutic efficacy[8].

Furthermore, the patient's hypertension, dyslipidaemia and diabetes compounded her cardiovascular risk and managing these conditions concurrently was critical. A more holistic approach was needed to avoid exacerbating one condition while treating another, as seen in the interplay between diabetes and hypertension. Integrated strategies, such as controlling those conditions with medications like ACE inhibitors, statins or SGLT2 inhibitors, helped mitigate risks to her cardiovascular and renal health[9].

3.4. Patient-centred Care

This case is a powerful example of the importance of patient-centred care, where the patient's preferences and values were actively incorporated into the decision-making process. At multiple points during her care, the patient and her family were engaged in discussions about treatment options.

The decision to pursue gynaecological treatment for her fibroids was influenced by the patient's personal goals and health values. Moreover, her family's active participation ensured that the treatment plan was aligned with their expectations, which may have contributed to improved treatment adherence and overall satisfaction.

In situations such as this, where the patient has multiple chronic conditions, it is crucial to comprehend and resolve the patient's emotional and psychological needs in addition to their physical conditions. In the end, health outcomes are improved by enhancing patient engagement through collaborative decision-making and education. Patients are empowered through education and collaborative decision-making enhances patient engagement and ultimately improves health outcomes and overall satisfaction[10].

3.5. Lifestyle Modifications and Preventive Care

Lifestyle modifications played an important role in managing this patient's conditions in addition to pharmacological treatment. Dietary changes to improve glycaemic control, reduce blood pressure and promote heart health were critical. Educating the patient how to manage weight, incorporating heart-healthy foods and increasing physical activity was essential for long-term management. Stress management strategies were also an important consideration, particularly given the psychological strain that multimorbidity can cause. Mental health and stress can affect physiological health, exacerbating conditions like diabetes and hypertension, so addressing this aspect through lifestyle changes and patient education helped create a holistic care approach[11].

4. Conclusion

This case illustrates the complexity of managing multimorbidity in primary care, highlighting the necessity for a dynamic, patient-centred approach. The integration of interdisciplinary collaboration, careful drug management and active patient involvement in care decisions contributed to positive health outcomes. Effective management of such complex cases requires continuous adaptation of treatment plans, taking into account the interplay between diseases, medications and lifestyle factors.

5. References

1. Zhou Y, Dai X, Ni Y, et al. Interventions and management on multimorbidity: An overview of systematic reviews. Ageing Research Reviews, 2023;87:101901.
2. Giunta S, Butow P, Juraskova I, Sharpe L, Ferguson E, Laidsaar-Powell R. Empowering family carers of people with multimorbidity as partners in chronic health care: Insights from health professionals. Patient Education and Counseling, 2022;105:3550-3557.
3. Bauer UE, Briss PA, Goodman RA, Bowman BA. Prevention of chronic disease in the 21st century: Elimination of the leading preventable causes of premature death and disability in the USA. The Lancet, 2014;384:45-52.
4. Lee IM, Shiroma EJ, Lobelo F, Puska P, Blair SN, Katzmarzyk PT. The Lancet Physical Activity Series Working Group. Effect of physical inactivity on major non-communicable diseases worldwide: An analysis of burden of disease and life expectancy. The Lancet, 2012;380:219-229.
5. Ruhayati Y, Rahayu NI, Muktiarni M, Ismail A, Mupita J. Technology support for health-promoting lifestyle: Development and testing. Journal of Advanced Research in Applied Sciences and Engineering Technology, 2025.
6. Lammila-Escalera E, Greenfield G, Barber S, Nicholls D, Majeed A, Hayhoe BWJ. A systematic review of interventions that use multidisciplinary team meetings to manage multimorbidity in primary care. International Journal of Integrated Care, 2022;22:6.
7. Jager C, Freund T, Steinhauser J, et al. Impact of a tailored program on the implementation of evidence-based recommendations for multimorbid patients with polypharmacy in primary care practices-results of a cluster-randomized controlled trial. Implementation Science, 2017;12:8.
8. Khunti K, Davies MJ. Clinical inertia versus overtreatment in glycaemic management. The Lancet Diabetes and Endocrinology, 2018;6(4), 266-268
9. Ray KK, Seshasai SRK, Wijesuriya S, Sivakumaran R, Nethercott S, Preiss D, Erqou S, Sattar N. Effect of intensive control of glucose on cardiovascular outcomes and death in patients with diabetes mellitus: A meta-analysis of randomised controlled trials. The Lancet, 2009;373:1765-1772.
10. Smith SM, Wallace E, Clyne B, Boland F, Fortin M. Interventions for improving outcomes in patients with multimorbidity in primary care and community setting: A systematic review. Systematic Reviews, 2021;10:271.
11. Bricca A, Harris LK, Jäger M, Smith SM, Juhl CB, Skou ST. Benefits and harms of exercise therapy in people with multimorbidity: A systematic review and meta-analysis of randomised controlled trials. Ageing Research Reviews, 2020;63:101166.