OPEN ACCESS

Saudi Journal of Medicine
Abbreviated Key Title: Saudi J Med
ISSN 2518-3389 (Print) | ISSN 2518-3397 (Online)
Scholars Middle East Publishers, Dubai, United Arab Emirates
Journal homepage: https://saudijournals.com

Case Report

Functional Dyspepsia (FD) and the Use of Sulpiride (Atypical Antipsychotic) in Family Practice– A Case Report

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DOI: 10.36348/sjm.2023.v08i12.002 | **Received:** 05.11.2023 | **Accepted:** 08.12.2023 | **Published:** 09.12.2023

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Abstract

Functional dyspepsia (FD), a commonly prevalent multifactorial disorder of gut-brain interaction (DGBI), is encountered and managed in family practice and gastroenterology clinics. The diagnosis is solely clinical based on Rome-IV criteria, excluding the organic, systemic, or metabolic causes. Management is often challenging ranging from lifestyle modifications, *H-pylori* eradication, H2-receptor antagonists, proton pump inhibitors, and prokinetics (1st-line) to antidepressants, and antipsychotics (2nd line) of therapy, once the patient shows no response to 1st line. In severe cases, refractory to 1st & the 2nd line of treatment needs a team approach and gut-brain behavioral therapy. Herein, we present a young female patient diagnosed with FD, managed well with 2nd-line treatment (Sulpiride), an atypical antipsychotic medication, as the patient's symptoms showed no improvement with first-line treatment.

Keywords: Functional Dyspepsia (FD), Sulpiride, Gastroesophageal reflux disease (GERD), Antipsychotic, Irritable Bowel Syndrome, Peptic Ulcer, Family physicians, Family practice, Gastroenterology, Rome-IV Criteria.

BACKGROUND

The recent shift to a patient-centric approach, aiming to improve healthcare: lead, to an increase; in patient flow in family practice. Functional dyspepsia (FD), a disorder of gut-brain interaction (DGBI), is a commonly seen condition; in family practice and gastroenterology outpatient clinics. Based on Rome-IV criteria, there is a high prevalence of FD in patients with dyspepsia having a prevalence: of 7% in the community, varied from country to country [1]. Dyspepsia is primarily defined; as symptoms of heartburn, nausea, and vomiting [2], with the addition of prime symptoms of epigastric burning or pain, early satiation, or post-prandial fullness. The high number of FD patients encounter physicians in family practice; a clear understanding of the pathophysiology and management of this commonly seen condition is vital for family physicians for the best possible care at the primary level from multiple treatment options available.

Herein, we present a young female patient; diagnosed with functional dyspepsia, managed with 2nd-line treatment (Sulpiride), in whom the 1st-line treatment failed to relieve her symptoms.

CASE PRESENTATION

A thirty-nine-year-old Saudi female, the overweight (wt.60kg BMI.27.4) patient, presented (1st visit) to our primary care center (PHC) with a history of epigastric discomfort, post-prandial bloating, and heartburn for the last two weeks when she noticed for the first time. There was no associated medical, surgical, or psychiatric history in the past, including family one. Clinical evaluation revealed nothing significant systemically except epigastric tenderness on palpation. Vitals recorded on the patient's subsequent visits (Table-1) were within the normal range, including basic laboratory work-up (Table-2). Based on the patient's history and clinical evaluation, a provisional diagnosis of gastroesophageal reflux; was made. Therefore, prescribed a proton pump inhibitor (omeprazole-20mg) was for two weeks, including counseling for lifestyle; modifications, including re-visit upon course completion.

The patient re-visited (2nd visit) the clinic with minimal improvement in her symptoms. During her 2nd visit, the primary workup ranging from vitals (Table-1) to laboratory workups (Table 2-4) in addition to a "urea

breath test"; confirming *Helicobacter Pylori (H. Pylori)* infection, thus advised H. Pylori eradication regime (test and treat) including; amoxicillin, clarithromycin, metronidazole and omeprazole for four weeks.

Upon completion; of the *H-pylori* treatment, the patient visited the family physician clinic at our PHC as a follow-up appointment (3rd visit). The patient shows no improvement in her symptoms while complaining of loss of appetite, and nausea in addition to her previous symptoms. The patient's clinical evaluation shows nothing significant. A repeat breath test and stool for *H-pylori* antigen repeated that came negative, showing eradication of helicobacter pylori. This time, the patient has been advised Mebeverine 200mg and metoclopramide 10mg for two weeks. On the next visit (4th visit), there were no significant improvements in her symptoms, thus decided on an internist was referred for evaluation and possible radiological workups such as computed tomography (CT); and ultrasound (US). Therefore, the patient was referred: to a nearby hospital.

However, the patient revisited our clinic (5th visit) for worsening her condition, having a medical consultation, and no significant findings on upper endoscopy, CT & US as requested during her internist visit. An in-depth inquiry of the patient pointed out a 5kg weight loss during this period, including non-specific symptoms of cold extremities and abdomen, suggestive of functional disorder, thus labeled the patient as functional dyspepsia (FD), and started Sulpiride 50mg-BID (an antipsychotic medication), licensed by Saudi Food and Drug Authority (SFDA) [3], for four weeks, after showing no response to conventional therapy and requested for a follow-up visit after a month. At her follow-up visit (6th) to our family clinic, the patient's symptoms improved, including a 3kg weight gain. The patient laboratory workup (tables 1-5) and events timeline as depicted in figure-1 below.

Table-1: Patient's vitals along the management line

	07/02/022	**08/03/2022**	**05/04/2022**	**10/05/2022**	**08/06/2022**	**12/07/2022**
Pulse-Radial (BPM)	80	84	79	87	79	84
Blood Pressure-Brachial (mmHg)	119/87	125/80	120/80	115/79	118/76	119/77
Respiratory Rate (R/R) /min	15	14	17	16	15	16
Weight in kilogram (kg)	60	60	60	60	55	58
Height (cm)	148	148	148	148	148	148
Body Mass Index (BMI) (25-30 overweight)	27.4	27.4	27.4	27.4	25.1	26.5
% Oxygen Saturation (O_2)	100	98	97	99	98	98
BPM, beats per minute, BP, blood pressure, BMI, body mass index, cm-centimeter, kg kilogram, R/R-respiratory rate, % O_2 - percent of oxygen saturation at room air.						

Table-2: Blood profile of the patient during subsequent visits

Date	**WBCs (4.6-10.2 (10*3/uL)**	**Hematocrit 37.7-53.7 (%)**	**RBCs 4.04-6.13 (10*6/ul)**	**Platelets 150-450 (10*3/ul)**	**Hb. 12.2-18.2 (g/dL)**	**MCV 80-97 (fL)**	**MCH 27-31 (pg)**	**MCHC 32-36 (g/dL)**
07/02/2022	7.39	37.1	3.57	365	12.1	82.1	26.1	32.4
08/03/2022	8.41	37.5	3.59	363	12.3	82.2	26.2	----
05/04/2022	8.40	40.0	3.57	----	12.1	81.8	----	32.4
10/05/2022	8.43	39.1	4.00	----	----	----	27.9	32.2
08/06/2022	7.80	40.2	----	363	----	----	26.8	31.9
12/07/2022	8.01	40.6	----	365	11.8	82.9	----	----
Hb-hemoglobin, RBC-red blood cells, WBC-white blood cells, MCV-mean corpuscular volume, MCH-mean corpuscular hemoglobin, MCHC-mean corpuscular hemoglobin concentration, pg-picogram.								

Table-3: Biochemistry profile of the patient during management

	7/2/2022	**08/03/2022**	**05/04/2022**	**10/05/2022**	**08/06/2022**	**12/07/2022**
Serum Na^+ (135-145 mEq/L)	136	137	139	136	137	139
Serum K^+ (3.5-5.5 mEq/L)	3.8	4.0	3.9	3.9	3.8	3.9
Serum Chloride (99-106 mmol/L)	100	99	----	----	99	100
Bicarbonates (22-29 mEq/L)	23.8	23.5	----	23.9	----	24.2
Glucose (3.9-5.6 mmol/L)	4.0	3.9	4.1	4.3	----	4.0
Creatinine (0.59-1.04 mg/dL)	1.00	0.59	1.01	----	1.01	1.00
Urea (6-24 mg/dL)	8.1	7.9	----	----	8.2	8.0
PH (7.35-7.45)	7.36	7.35	----	7.37	7.36	7.37
$PaCo_2$ (35-45 mmHg)	36.3	35.7	36.8	----	----	36.9
PaO_2 (75-100 mmHg)	90	89	91	85	88	90
mEq/L-milliequivalents/Liter, mmol/L- millimoles/Liter, Na^+-sodium, K^+-potassium.						

Table-4: Patient's liver profile along the management line

	07/02/2022	08/03/2022	05/04/2022	10/05/2022	08/06/2022	12/07/2022
ALT (12-78 IU/L)	48	47	46	49	46	48
AST (15-37 IU/L)	24	23	26	28	27	25
ALP (46-116 IU/L)	65	65	64	67	59	----
Serum Albumin (35-52 g/L)	37.0	36.8	37.3	----	----	37.9
Direct Bilirubin (1.71-3.4 umol/L)	1.29	1.30	1.10	----	----	1.20
Total Bilirubin (3-17 umol/L)	5.1	5.3	----	5.9	6.2	----
Total Protein (64-82 g/L)	66.8	67.3	----	67.4	66.1	64.3
ALT-Alanine Aminotransferase, AST- Aspartate Aminotransferase, ALP- Alkaline Phosphatase.						

Table-5: Patient's urea breath test and stool antigen for *H-pylori*

	08/03/2022	05/04/2022
Urea breath test for *H-pylori*	Positive	Negative
Stool test for *H-pylori* antigen	---------	Negative

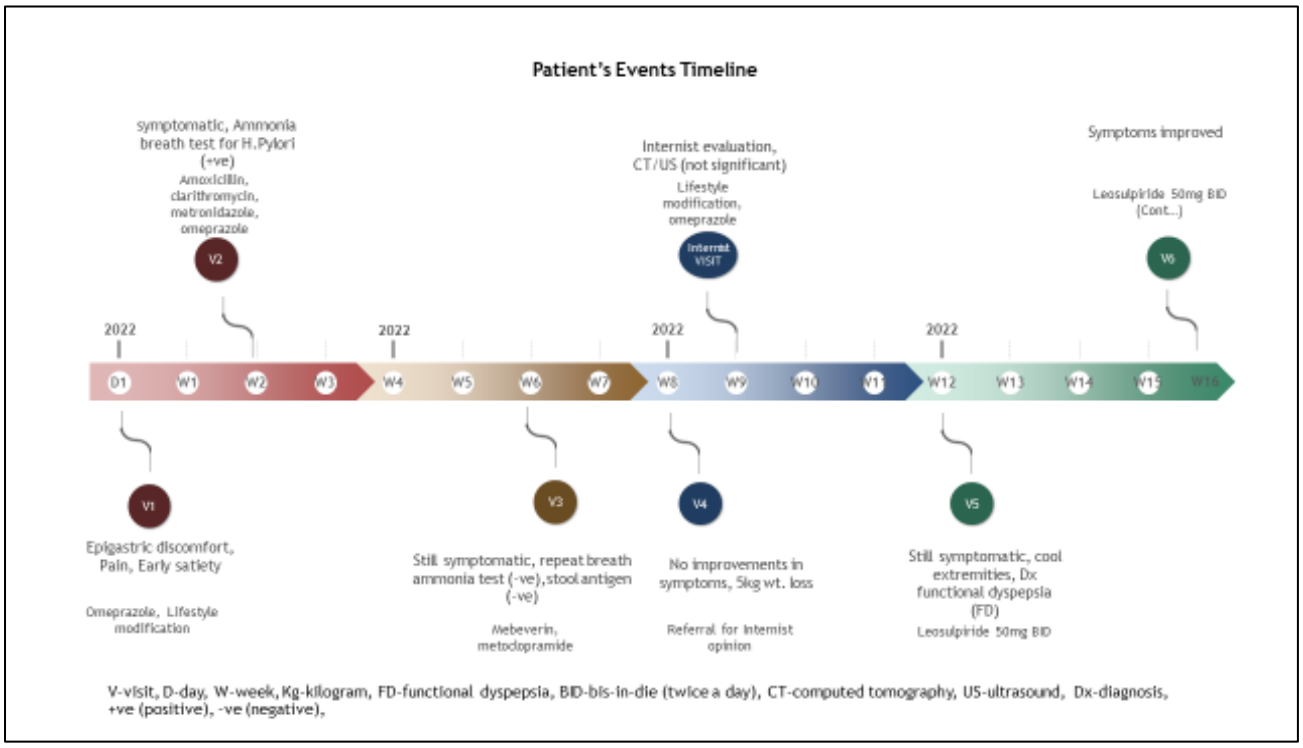

Figure-1: Patient's events timeline from 1st to the follow-up visit

DISCUSSION

Functional dyspepsia (FD) is a gut-brain interaction disorder most commonly seen in family practice. The "Rome Criteria"- gold-standard symptom-based diagnostic criteria for "Functional Dyspepsia (FD)" developed by "Rome Foundation" evolved with the recent iteration as "Rome-IV" by adding the word "intractable" before each symptom. According to revised criteria, FD is defined, as intractable epigastric pain and/or burning, early satiation, and postprandial; fullness: at least thrice a week in the past three months, and an onset of six months at least, prior diagnosis, with no evidence of any structural abnormality, that can affect patient's quality of life[4]. The condition has two subsets; epigastric pain syndrome (EPS) and postprandial distress syndrome (PDS). Commonly, the symptoms of both subsets overlap, almost in 20% of the cases, [5] based on "Rome-IV Criteria"; thus, a challenge for physicians to demarcate as seen in our patient. According to the Rome Foundation's global survey in the recent past, based on "The Rome-IV Criteria, the global prevalence of FD dropped to 7%, [6] compared to 30% [7] in the past. However, the prevalence varies among countries and communities.

In the general population, the predisposing factors for dyspepsia include; female gender, young age, non-steroidal anti-inflammatory drugs (NSAIDs), helicobacter pylori (*H-pylori*) infection, and other disorders of gut-brain interactions (DGBIs) such as Irritable bowel syndrome (IBS) [7-10]. Thus patients should be evaluated for predisposing factors, including *H-pylori*, as followed in our patient, a young female: and positive (+ve) for *H-pylori* infection by an

ammonia breath test. Patients with a primary diagnosis of FD should be evaluated by a gastroenterologist to rule out any structural cause by upper endoscopy as performed for our patient.

The recently published, evidenced-based management guidelines by the British Society of Gastroenterologists [11] outline the management of FD in detail with Sulpiride as 2nd-line management once the 1st-line treatment shows no improvement in the patient's dyspeptic symptoms, as followed in our patient. Besides traditional therapeutic options, there are emerging therapies; that target duodenal alterations and restore microbial homeostasis, [12] improving patients' symptoms, refractory to; conventional treatment. The earlier include; resolving micro-inflammation, mast cell stabilizers, histamine receptor antagonists, leukotrienes antagonists, monoclonal antibodies, and Janus kinase inhibitors. Similarly, the latter includes probiotics and selected antibiotics.

Multiple studies [13-16], case studies, systemic reviews, and meta-analyses support the beneficial effects of Sulpiride in relieving dyspeptic symptoms in patients planned for 2nd-line management. In the systemic review and meta-analysis of Ford *et al.*, [17] sulpiride or levosulpiride were high in efficacy; compared to placebo in the treatment; of FD. Similarly, in a double-blind controlled study by Hui *et al.*, sulpiride improves symptoms of Functional Dyspepsia compared to placebo [18].

CONCLUSION

Patients with FD; are commonly encountered in family-care clinics. Family physicians should be vigilant enough to diagnose and treat the condition in the early phase through first-line management. However, under specialist supervision, sulpiride may be reserved for patients: in whom; first-line therapy fails to improve dyspeptic symptoms.

Conflict of Interest: The authors have no conflict of interest to declare.

Ethical Approval: Ethical approval, granted by Jazan Health Ethics Committee with reference number (2281).

Source of Funding: No source of funding for this work.

Consent: Informed consent has been taken: from the patient for publication; of the data.

Authors Contribution:

- AJA acquired the idea, prepared and approved the draft.
- AMA reviewed the primary draft and approved the final draft.
- LAK prepared, reviewed and approved the final draft.

Key-Clinical Message

Family physician specialists working in primary practice may opt for sulpiride (atypical antipsychotic) medication in patients of functional dyspepsia, in whom 1st-line therapy fails to relieve dyspeptic symptoms.

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