Original Article

Atypical dyspnea presentation among adult population in Basrah, Iraq

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Abstract

Background: the presentation of shortness of breath is very common, and the differential diagnosis is so versatile that required great attention and out of box thinking to reach the final diagnosis which help to alleviate patients' complains and improve their quality of life.

Objective: evaluation of another differential diagnosis for patients with multiple, atypical dyspnea presentation at cardiology unit in Alsadar Teaching Hospital, Basrah, Iraq.

Materials and Method: Fifty-eight patients have atypical dyspnea presentation enrolled in this study for the period from July 2020 tell August 2022. Cardiac and pulmonary causes were excluded by cardiologist prior to otorhinolaryngological evaluation for upper airway causes of dyspnea.

Results: 58 adult patients enrolled in this study. The age range was 19 – 68 years with mean of 41.64 ± 12.67 years. The majority of the studied patients were in the 3rd and 4th decade of life (55.2%). Most of those patients had nasal pathology causing moderate to severe upper airway obstruction (63.8%). The majority of those patients report great improvement in their quality of life after intervention either medically, surgically or combination of both (88%).

Conclusion: atypical dyspnea presentation in adults is challenging due to different pathology and systems involved. Upper airway causes of this presentation can be solved with great improvement in the patients' quality of life.

Keywords: dyspnea, shortness of breath, upper airway diseases.

INTRODUCTION

Dyspnea or as commonly known as shortness of breath is defined as subjective sensation of difficult breathing expressed by the patient [1]. It is a major presentation in adult all over the world, with about 20% to 30% of emergency and cold presentation to health care centers in Iraq [2]. The differential diagnosis of dyspnea usually falls in 4 main categories: pulmonary, cardiac, mixed cardiac and pulmonary and finally noncardiac nor pulmonary, as shown in table (1). [3]

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Table (1): Differential Diagnosis of Dyspnea [3]

Cardiac	
Congestive heart failure (right, left or biventricular)	
Coronary artery disease	
Myocardial infarction (recent or past history)	
Cardiomyopathy	
Valvular dysfunction	
Left ventricular hypertrophy	
Asymmetric septal hypertrophy	
Pericarditis	
Arrhythmias	
Pulmonary	
COPD	
Asthma	
Restrictive lung disorders	
Hereditary lung disorders	
Pneumothorax	
Mixed cardiac or pulmonary	
COPD with pulmonary hypertension and cor pulmonale	
Deconditioning	
Chronic pulmonary emboli	
Trauma	
Noncardiac or nonpulmonary	
Metabolic conditions (e.g., acidosis)	
Pain	
Neuromuscular disorders	
Otorhinolaryngeal disorders	
Functional	
	Anxiety
	Panic disorders
	Hyperventilation

MATERIALS AND METHOD:

Study design and setting: This is a cross-sectional, descriptive and interventional study conducted at cardiac and otolaryngological medical unit in Al-Sadar Teaching Hospital, Basrah, Iraq. Patients verbal consent was obtained after explanation of the purpose of this study. Ethical and legal approval were obtained from both Basrah college of medicine and Al-Sadar Teaching Hospital

Patients: The study population were adult patients with feeling of unexplained shortness of breath visiting the cardiac medical unit of Al-Sadar Teaching Hospital in Basra, Iraq during the period from July 2020 till June 2022. Sixty-seven patients were interviewed for this study during 2 years period. 6 patients were excluded due to pre-existing cardiac or pulmonary disease and 3 patients were lost during follow up. Only 58 patients were enrolled as the final studied population.

Data collection: all patient were evaluated by cardiologist for presentation of long-standing breathlessness. Sociodemographic data were collected by pre designed medical questionnaire form that include any risk factors for cardiovascular disease. Cardiac evaluation includes comprehensive history and complete physical examination emphasizing on vital signs, accessory respiratory muscle use, assessment of peripheral oedema and jugular venous pressure, oropharyngeal examination and examination of precordium and lungs' fields. All patient were subjected to surface electrocardiogram, bed side echocardiography, chest X-ray bed side spirometry. All patients with cardiovascular risk factors obtained by history and examination were subjected to ECG stress test. CT coronary angiography was done to certain group of patients who can't tolerate ECG stress test due musculoskeletal or neurological causes, or when ECG stress tests were inconclusive or equivocal. Invasive coronary angiography was done to selected group of patients with cardiovascular risk factors and high pre-test probability of coronary artery disease. Pulmonary function test is an adjunctive to spirometry for assessment of chronic dyspnea of suspected respiratory causes.

Blood investigation and comprehensive metabolic panel include the following: complete blood count, urea and electrolytes, liver and thyroid function tests were done for all patients to role out non cardiac or non-pulmonary causes of dyspnea.

After exclusion of cardiac and/or pulmonary causes by the workup mentioned above the were referred to otorhinolaryngological unit for evaluation of upper airway causes of dyspnea.

Full otorhinolaryngological, head and neck history and examination were done for each patient, emphasizing on nasal, post nasal, pharyngeal and laryngeal examination including flexible nasolaryngoscopy, rigid 0- and 30-degree nasal endoscopy, rigid 70- and 90-degree laryngoscopy with stroboscopic examination for selected cases.

Investigation in form of Skin prick test (AST), CT nose and paranasal sinuses and neck ultrasonography were done for selected patients according to the finding of otorhinolaryngological examination. Management plan of each case was selected according to the results of examination, investigation and patients wish or concern either conservatively, medically or surgically.

Statistical analysis: The data were analyzed using the SPSS (SPSS Inc., Chicago, IL, USA) version 26.

RESULTS:

Fifty-eight patients were enrolled in this study, of them 26 patients were males and 32 patients were females representing a percentage of 44.8% and 55.2% respectively. This shown in figure [1].

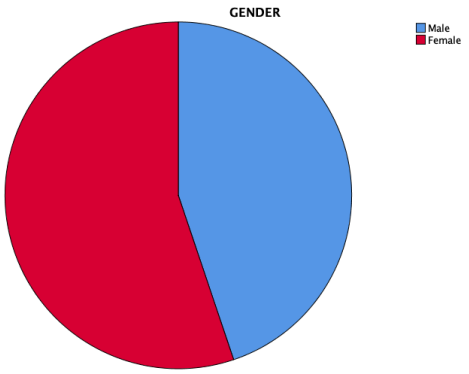

Figure [1]: frequency of male and female patients in our study.

The mean age of the studied population was 41.64 ± 12.67 years (range: 19-68 years). The distribution of the age groups in the studied population was subdivided every 10 years period for easy clarification starting from < 20 years tell 60-70 years group. The age group classification is shown in table [2]. And the distribution of the patients age group curve is shown in figure [2].

Table [2]: frequency and percentage of age group of the studied population

	AGE GROUPS	Frequency	Percent	Cumulative Percent
1	< 20 yrs	1	1.7	1.7
2	20-30 yrs	8	13.8	15.5
3	30-40 yrs	21	36.2	51.7
4	40-50 yes	11	19.0	70.7
5	50-60 yrs	10	17.2	87.9
6	60-70 ys	7	12.1	100
	Total	58	100.0	100.0

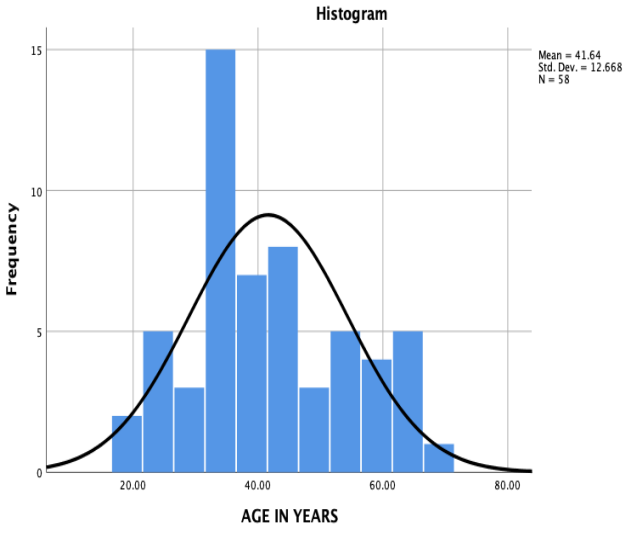

Figure [2]: age group distribution of the studied population.

The cardiac and pulmonary evaluation done for each patient is shown in table [3].

Table [3]: the cardiac and pulmonary evaluation of the studied population

	Cardiac and pulmonary evaluation	Frequency	Valid Percentage
1	Comprehensive history and physical examination	58	100%
2	ECG	58	100%
3	ECHO	58	100%
4	CXR	58	100%
5	Bed side spirometry and / or pulmonary function test	58	100%
6	ECG stress test	45	77.5%
7	CT coronary angiography	7	12%
8	Invasive coronary angiography	2	3.4%

The result of otorhinolaryngological history taking, clinical and endoscopic examination, radiological investigation and allergic screening investigation done at otorhinolaryngological unit is listed in figure [4] and table [4].

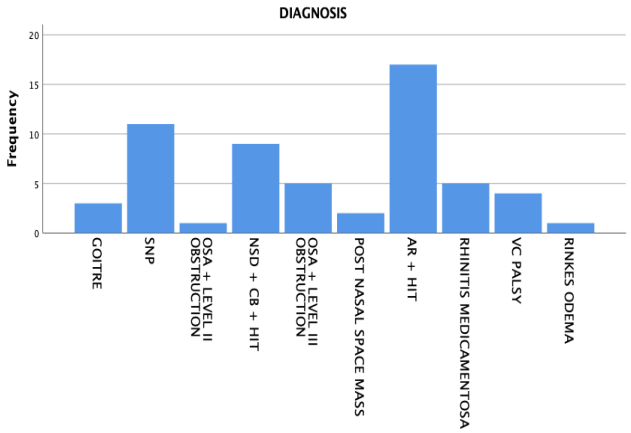

Figure [3]: the frequency of ENT diagnosis of the studied population

Table [4]: ENT diagnosis and finding of the studied population

	DIAGNOSIS	Frequency	Valid Percent	Cumulative Percent
1	GOITRE	3	5.2	5.2
2	SNP	11	19.0	24.1
3	OSA + LEVEL II OBSTRUCTION	1	1.7	25.9
4	NSD + CB + HIT	9	15.5	41.4
5	OSA + LEVEL III OBSTRUCTION	5	8.6	50.0
6	POST NASAL SPACE MASS	2	3.4	53.4
7	AR + HIT	17	29.3	82.8
8	RHINITIS MEDICAMENTOSA	5	8.6	91.4

9	VC palsy	4	6.9	98.3
10	Reneke's oedema	1	1.7	100

Intervention done by ENT unit for those patients is listed in figure [4] and table [5].

Table [5]: frequency and percentage of management done by ENT unit for the studied population in Sadar Teaching Hospital.

	MANAGEMENT	Frequency	Valid Percent	Cumulative Percent
1	Reassurence + Follw up	2	3.4	3.4
2	Rx + Sx	19	32.8	36.2
3	Sx + FU	13	22.4	58.6
4	Rx + LIFE STYLE MODIFICATION	5	8.6	67.2
5	Rx + FU	19	32.8	100.0
	Total	58	100.0	

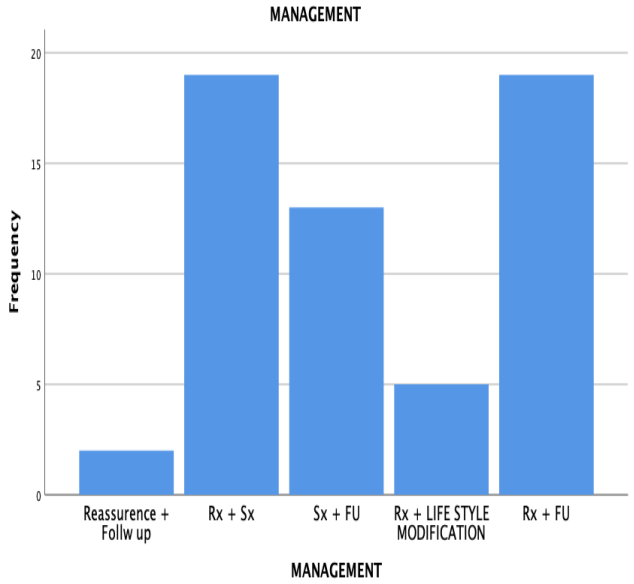

Figure [4]: management done by ENT unit for the studied population in Sadar Teaching hospital.

Disscusion:

Breathlessness or dyspnea is a common presenting problem in the outpatient settings. [4] It has multiple diagnostic categories, so establishing a diagnosis can be challenging. Underlying diagnoses range from simple conditions treated as an out patients' cases to serious ones that are best addressed in an emergency department. [5] The etiology is multifactorial in up to one third of patients that are best to classified into 4 main categories: cardiac, pulmonary, cardiac and pulmonary and finally non cardiac non pulmonary causes. [3]

In our study, a group of patients suffer from long standing unexplained dyspnea, with multiple medical consultation to cardiac and pulmonary physician with no improvement.

58 patients were enrolled in this study, age range from 19-68 years. The majority of those patients were in age group 30-40 years and 40-50 years (36.2%) and (19%) respectively representing (55.2%) of total patients and most of them were females (55.2%).

Full cardiac, pulmonary and metabolic assessment done for each patient including complete history and examination, surface ECG, ECHO, CXR and spirometry or pulmonary function test. [6][7][8] Bed side spirometry and pulmonary function test is essential to be performed and obtaining a peak expiratory flow rate in patients with suspected asthma or COPD Patients. [9]

Complete blood count, D-dimer and comprehensive metabolic panel is useful for suspected infection or anemia and renal function test for a suspected renal disorder. D-Dimer testing can be useful in suspected pulmonary embolism. Negative assay in low probability patients helps to exclude pulmonary embolism. [10][11][12]

Patients with cardiovascular risk factors were subjected to ECG stress test and / or CT coronary angiography. ECG stress test is useful to exclude ischemic heart disease in patients with low and intermediate pre-test probably. [13] patients with dyspnea as a primary symptom were included in pre-test probability of European society of cardiology Guideline in 2019. The likelihood of chronic coronary syndrome decreases by a normal ECG exercise test or normal calcium score by CT coronary angiography keeping in mind false negative ECG exercise test especially in the absence of a diagnosis that explains patients' symptoms. [14]

All 58 patients were referred to ENT medical unit for assessment of upper airway disease. The finding as shown in table [4] were confirmed by full ENT history and examination including video nasoendoscopic and laryngoscopic examination, allergic skin testing, US of neck, CT scan and occasionally biopsy under local anasethisa.

The majority of those patients had nasal complain as a cause of their dyspnea, as shown in table [4], allergic rhinitis with hypertrophied inferior turbinate (17 patients), Sinonasal polyposis (11 patients) and nasal septal deviation with Concha bullosa and hypertrophied inferior turbinates (9 patients) representing 29.3%, 19% and 15.5% respectively and 63.8 % of total patients' diagnoses.

The management of those patients, as listed in table [5], ranged from medical treatment and follow up (19 patients), combination of medical treatment with surgical intervention (19 patients) or surgical intervention with follow up (13 patients) representing 32.8%, 32.8% and 22.4% respectively

representing a total of 88% early improvement. With follow up, all those patients (58 patients) show dramatic improvement in their symptoms and significant improvement in their quality of life. Up to our knowledge while searching the literatures, no similar articles were found that demonstrates interventional approach to upper airway disease as a differential diagnosis for long standing, unexplained dyspnea.

Conclusion:

upper airway disease can be an important differential diagnosis of cardiac or pulmonary dyspnea, patients' quality of life can be significantly improved by proper medical, surgical or a combination of both medical and surgical intervention to solve the upper airway cause of long standing, unexplained dyspnea.

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Nil.

CONFLICTS OF INTEREST

There are no conflicts of interest.

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