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Research Article

ATRIAL ARRHYTHMIAS INCIDENCE (ATRIAL FIBRILLATION “AFL”, MULTIFOCAL ATRIAL TACHYCARDIA “MAT” & ATRIAL FLUTTER “AF”) IN COPD CASES

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Abstract:

Objectives: We aimed to assess the atrial arrhythmias frequency that includes atrial flutter, atrial fibrillation and multifocal atrial tachycardia in the COPD patients.

Methodology: We included a total of 240 COPD (Chronic Obstructive Pulmonary Disease) patients in our research which were carried out at Sir Ganga Ram Hospital, Lahore from March 2016 to April 2017. We started research protocols after securing an informed consent from the research participants and explained all the details to the research participants. Confidentiality was also maintained throughout the research. Address, age and gender were included about the demographic data and all the outcomes were recorded on a predesignated Performa. ECG was carried out to observe an absence or presence of irregular rhythm, p-waves, irregular PP interval, regular rhythm and arterial activity Saw-tooth pattern in the ECG leads. Every outcome was recorded for further analysis and record keeping.

Results: The age bracket of (40 – 55) years was reported in 111 patients (46.25%); whereas 129 patients were in the age bracket of (56 – 70) years with a mean age of (56.23 ± 8.19) years. We included 134 males (55.83%) and 106 females (44.17%). Disease duration was reported as (1 – 2) years in 142 patients (59.17%); whereas, 98 patients had a duration of more than two years (40.83%). Atrial arrhythmias frequency was reported in 22 cases (9.17%) who suffered from COPD, 53 patients had Atrial flutter (22.8%) and 31 patients had Multifocal atrial tachycardia (12.92%).

Conclusion: It is concluded through research outcomes that atrial arrhythmias frequency was high in the COPD patients. Which is why every COPD case is to be examined for atrial arrhythmias. It is also important to keep a surveillance to be informed about the disease occurrence.

Keywords: Atrial Arrhythmias, COPD (Chronic Obstructive Pulmonary Disease), Atrial Flutter and Multifocal Atrial Tachycardia.

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INTRODUCTION:

COPD is actually an obstruction of the airflow which is caused by the emphysema or chronic bronchitis. According to estimates about fourteen million Americans are affected by COPD. Smoking attributes a major portion of the COPD occurrence [1]. COPD is also considered as a global health problem with a universally accepted cause of smoking all over the world. COPD is at fifth number causing mortality all over the world (WHO, 2001) [6]. Major COPD complications are Atrial Fibrillation, Multifocal Atrial Tachycardia and Atrial Flutter. These are also repeated atrial arrhythmias in COPD patients. Atrial Fibrillation is more common than the incidence of Atrial Flutter. Patients with a COPD history often face Atrial Fibrillation and Multifocal Atrial Tachycardia [1 – 3]. There is an increase in Atrial Fibrillation patients above 85 years in the United Kingdom [7].

It has been learnt through literature reviews that about forty percent of the cases are reported about Multifocal Atrial Tachycardia before being treated having stable or no cardiac disorders in the COPD diagnosed cases [5]. COPD has been reported previously in twenty percent cases with an occurrence of heart failure (P-value under 0.001). Heart Failure is also attributed to COPD [4]. In a survey held in the USA reports about the Atrial Flutter prevalence that it was estimated at about 0.07 million Atrial Fibrillation patient back in 2005 [8]. Multifocal Atrial Tachycardia was reported in the range of (2.5% to 20%) [9]. It is also reported by another author that Atrial Fibrillation percentage in the COPD history was about twelve percent and Atrial Flutter percentage as 25% (P-Value = 0.006); which reflects the COPD is more likely observed in the Atrial Fibrillation [2]. Atrial Fibrillation in the COPD diagnosed patients was reported as (21.7%) with a significant P-value of (0.001) [3]. The Multifocal Atrial Tachycardia was reported from 27% to 32% with a significant P-value of (0.70) [5]. We aimed to assess the atrial arrhythmias frequency that includes atrial flutter, atrial fibrillation and multifocal atrial tachycardia in the COPD patients. Outcomes may vary as scarce data is available about

the disease and regional differences also influence the outcomes.

METHODOLOGY:

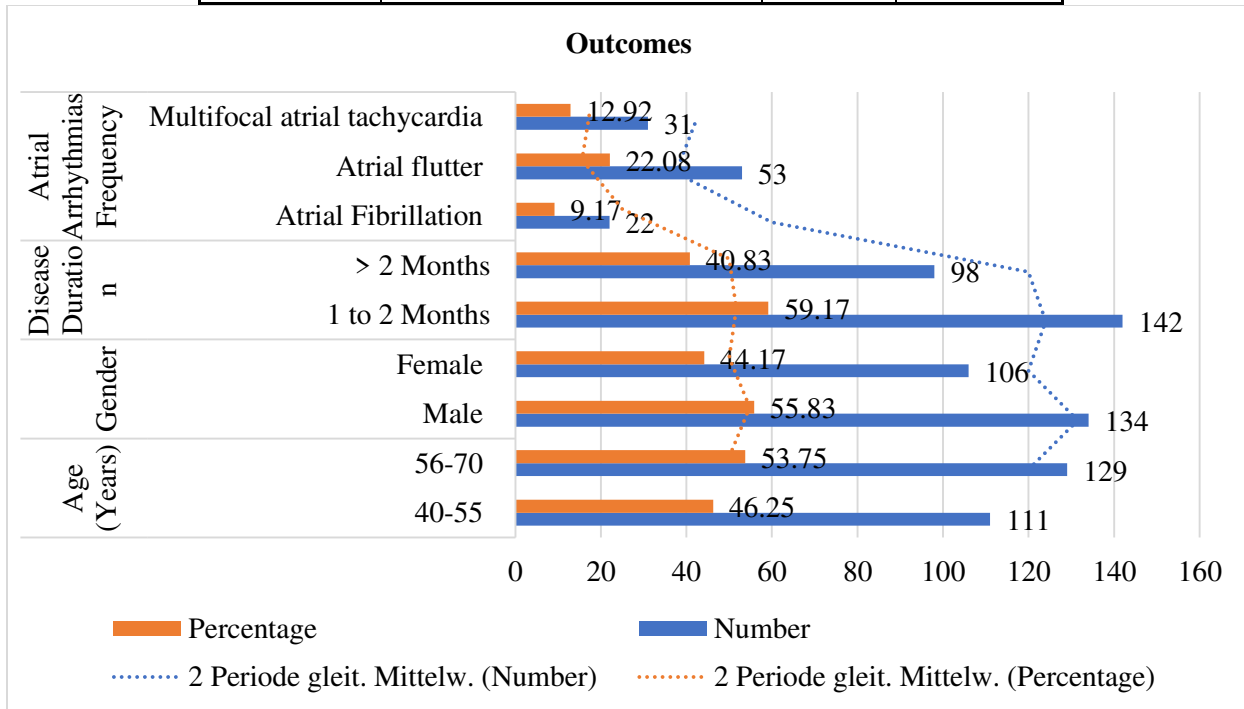
We included a total of 240 COPD (Chronic Obstructive Pulmonary Disease) patients in our research which were carried out at Sir Ganga Ram Hospital, Lahore from March 2016 to April 2017. We started research protocols after securing an informed consent from the research participants and explained all the details to the research participants. Confidentiality was also maintained throughout the research. Patients were enrolled in the age group of 40 – 70 years of both genders with more than one-year COPD history, ten years duration smokers and regular treatment cases were also enrolled in the research. Ischemic heart disease patients were also made a part of the research. We did not include all the patients who had a previous exposure to chemicals and occupational dust. Diabetic cases were also excluded including all the cases with an imbalance of non-electrolytes and diuretics. Address, age and gender were included about the demographic data and all the outcomes were recorded on a predesignated Performa. ECG was carried out to observe an absence or presence of irregular rhythm, p-waves, irregular PP interval, regular rhythm and arterial activity Saw-tooth pattern in the ECG leads. Every outcome was recorded for further analysis and record keeping.

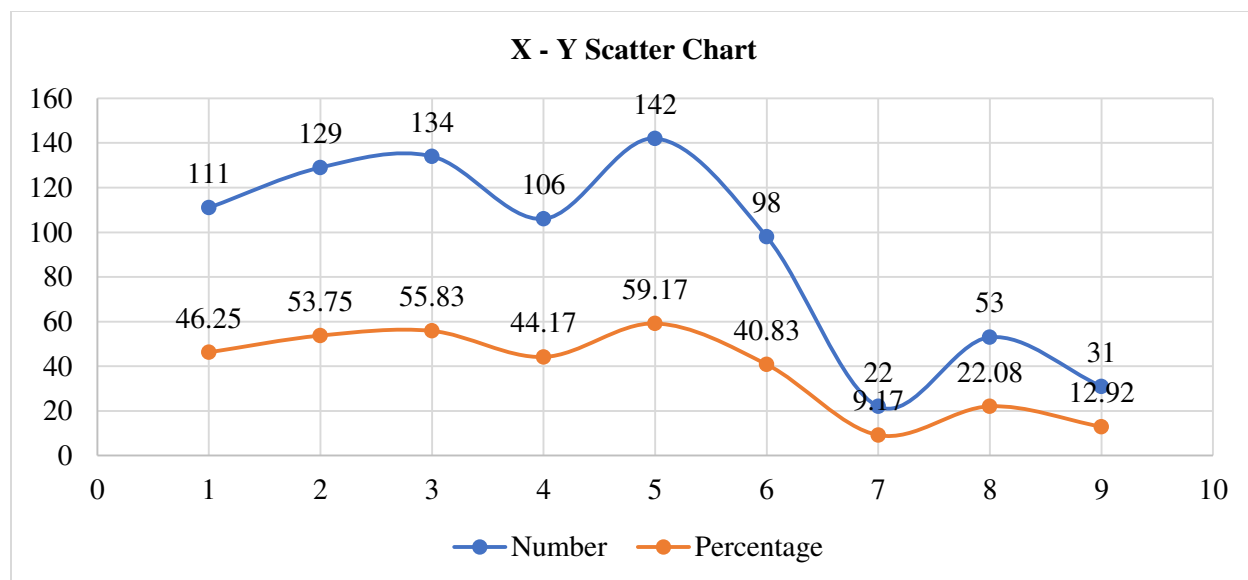
RESULTS:

The age bracket of (40 – 55) years was reported in 111 patients (46.25%); whereas 129 patients were in the age bracket of (56 – 70) years with a mean age of (56.23 ± 8.19) years. We included 134 males (55.83%) and 106 females (44.17%). Disease duration was reported as (1 – 2) years in 142 patients (59.17%); whereas, 98 patients had a duration of more than two years (40.83%). Atrial arrhythmias frequency was reported in 22 cases (9.17%) who suffered from COPD, 53 patients had Atrial flutter (22.8%) and 31) patients had Multifocal atrial tachycardia (12.92%). Outcomes analysis has been carried out in the given tabular data and graphs.

Table: Research Outcomes

Outcomes		Number	Percentage
Age (Years)	40 – 55	111	46.25
	56 – 70	129	53.75
Gender	Male	134	55.83
	Female	106	44.17
Disease Duration	1 to 2 Months	142	59.17
	> 2 Months	98	40.83
Atrial Arrhythmias Frequency	Atrial Fibrillation	22	9.17
	Atrial flutter	53	22.08
	Multifocal atrial tachycardia	31	12.92





DISCUSSION:

This particular research was planned in order to determine atrial arrhythmias frequency (atrial flutter, atrial fibrillation and multifocal atrial tachycardia) in COPD diagnosed patients. It was a fact that no data was available about the topic at hand and regional differences also affected the research outcomes and it also varied according to research population.

The age bracket of (40 – 55) years was reported in 111 patients (46.25%); whereas 129 patients were in the age bracket of (56 – 70) years with a mean age of (56.23 ± 8.19) years. We included 134 males (55.83%) and 106 females (44.17%). Disease duration was reported as (1 – 2) years in 142 patients (59.17%); whereas, 98 patients had a duration of more than two years (40.83%). Atrial arrhythmias frequency was reported in 22 cases (9.17%) who suffered from COPD, 53 patients had Atrial flutter (22.8%) and 31) patients had Multifocal atrial tachycardia (12.92%). These outcomes are comparable with the outcomes reported by Pappone C, as it indicates a range from 2.5% to 20% about Multifocal Atrial Tachycardia [9]. Another author also reported Atrial Fibrillation percentage in the previously along with COPD history and Atrial Flutter respectively 12% and 25% with a significant P-value of (0.006). This reflects more chances of COPD in the patients having Atrial Fibrillation [2].

Atrial Fibrillation was reported in 21.7% of patients who suffered from COPD with a P-value of 0.001 [3]. The range of Multifocal Atrial Tachycardia was reported as (27% – 32%) with a P-value of (0.70) [5]. These outcomes are higher as reported in our research which can be attributed to the regional

variations.

It is also learnt through various epidemiological studies that COPD diagnosed and asthma treated patients having oral steroids are prone to the Atrial Flutter development risk even in the controlled disease variety [10]. According to Van der Hooft, higher Atrial Flutter incidence in the patients need high oral steroids dose without any due consideration of aetiology [11]. Steroids facilitate arrhythmogenesis by directly affecting cell membrane which results in the shape of potassium efflux through cells [12]. Atrial Flutter is also linked with the Theophylline in COPD patients even in the patients with normal levels of serum [13].

However, it can be concluded with reference to research outcomes that most repeated arrhythmia in COPD patients is Atrial Fibrillation. More strength can be put into outcomes through more research work on the topic for further validation of the outcomes.

CONCLUSION:

It is concluded through research outcomes that atrial arrhythmias frequency was high in the COPD patients. This is why every COPD case is to be examined for atrial arrhythmias. It is also important to keep a surveillance to be informed about the disease occurrence.

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