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Original Article

Evaluation for airway obstruction in adult patients with stable IHD

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ABSTRACT

Background: IHD and chronic airway disease (COPD and Asthma) are major epidemics accounting for significant mortality and morbidity. The combination presents many diagnostic challenges. Clinical symptoms and signs frequently overlap. There is a need for airway evaluation in these patients to plan appropriate management.

Methods: Consecutive stable IHD patients attending the cardiology OPD in a tertiary care centre were interviewed for collecting basic demographic information, brief medical, occupational, personal history and risk factors for coronary artery disease and airway disease, modified medical research centre (MMRC) grade for dyspnea, quality of life–St. George respiratory questionnaire (SGRQ), spirometry and six-min walk tests. Patients with chronic airway obstruction were treated as per guidelines and were followed up at 3rd month with spirometry, six-minute walk test and SGRQ.

Results: One hundred fourteen consecutive patients with stable cardiac disease were included (Males–88, Females–26). Mean age was 58.89 ± 12.24 years, 53.50% were smokers, 31.56% were alcoholics, 40.35% diabetics, 47.36% hypertensive. Twenty five patients had airway obstruction on spirometry (COPD–13 and Asthma–12) and none were on treatment. Thirty-one patients had cough and 48 patients had dyspnea. Patients with abnormal spirometry had higher symptoms, lower exercise tolerance and quality of life. Treatment with appropriate respiratory medications resulted in increase in lung function, quality of life and exercise tolerance at 3rd month.

Conclusion: Chronic respiratory disease in patients with stable IHD is frequent but often missed due to overlap of symptoms. Spirometry is a simple tool to recognize the underlying pulmonary condition and patients respond favorably with appropriate treatment

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1. Introduction

Ischemic heart diseases (IHD) and chronic respiratory diseases account for significant morbidity and mortality throughout the world.^{1,2} The combination of the two poses many difficulties in the diagnosis as clinical symptoms like dyspnea and cough frequently overlap.³ Although both conditions have been extensively studied separately, there is sparse data addressing the combination of both diseases.⁴ It is important to identify and appropriately manage chronic obstructive airway disease in IHD patients because these patients have poor prognosis compared to presence of either disease alone.^{5–7} Indeed it is shown that poor lung function is a strong predictor of cardiac mortality.^{8,9} Younger patients with

cardiac disease might have asthma and older patients with IHD might have underlying chronic obstructive pulmonary disease (COPD), which is often overlooked. Smoking, increasing age and systemic inflammation are the shared risk factors for the development of COPD as well as coronary artery disease and both often coexist.¹⁰

There is varying prevalence rate of COPD in patients with IHD (9–51%) due to different study design, population and confirmatory test used for diagnosis, with most studies observed one-quarter to one-third of the cardiac patients had COPD.^{9,11–18} Even though spirometry is gold standard for diagnosis of COPD it is often underutilized with only one-third of cardiac patients having undergone spirometry at least once, that leads to under diagnosis of COPD in cardiac patients.^{19–21} Spirometry must be done in all patients having cardiac disease.¹¹ There is a need to know the prevalence of respiratory diseases such as asthma and COPD in patients with stable IHD in Indian population, evaluate the effect of appropriate treatment for their respiratory disease on quality of life and exercise tolerance.

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2. Methodology

Study design: We conducted a prospective study in cardiology OPD in 1800 bedded tertiary care centre, JSS medical college and University, Mysuru during February to May 2016. Consecutive adult patients with IHD attending cardiology OPD for regular follow up were screened for inclusion and exclusion criteria and patients satisfying inclusion criteria were included in the study after taking informed consent. Inclusion criteria were adult patients with stable IHD on optimal cardiac medications for at least 3 months without worsening symptoms. Exclusion criteria were patients who refused to consent, patients with contraindication for spirometry and six minute walk test as per ATS guidelines, patients unable to perform spirometry or six minute walk test, hemodynamic instability and pregnancy were excluded from the study. Patients were interviewed with questionnaire containing

basic demographic information, brief medical (drug, frequency and duration), occupational and personal history (smoking index, alcohol intake) and St. George respiratory questionnaire (SGRQ) and chest x-ray. Spirometry and 6 min walk test was performed as per guidelines provided by American Thoracic Society (ATS) and Global Initiative for Obstructive Lung Disease (GOLD).

Spirometry (Easy on PC, NDD, Medizintechnik AG, Zurich, Switzerland) was performed by a trained staff and it included measurement of forced expiratory volume in first second (FEV1) and forced vital capacity (FVC) and peak expiratory volume in seated position using American Thoracic Society guidelines (ATS) and highest measurements among best three trials which is technically acceptable and reproducible were taken. Predicted values for FVC, FEV1 and FEV1/FVC were obtained by predicted equation defined by Knudson corrected for asian population (knudson 83×0.87). Both pre and post bronchodilator tests were

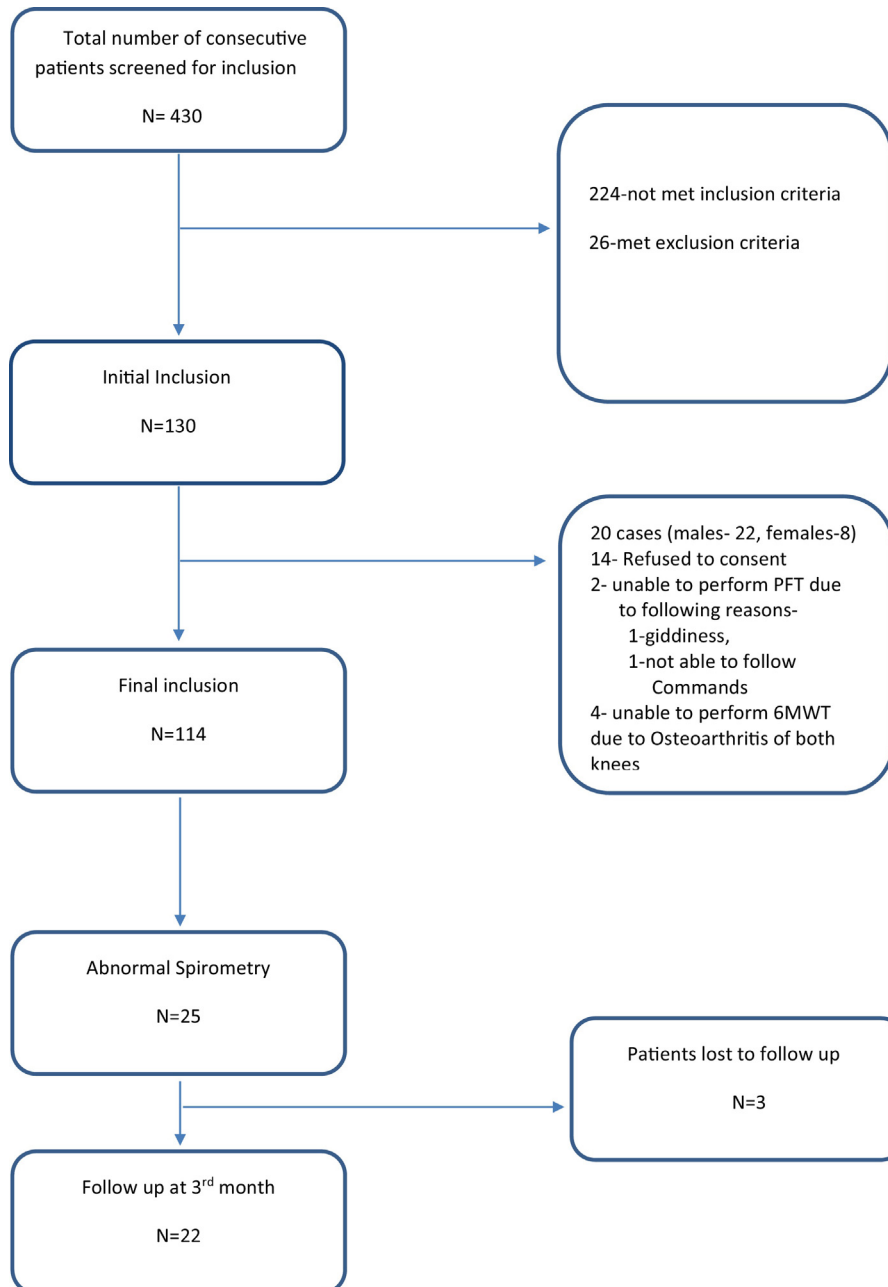


Fig. 1. Flow chart depicting flow of patients screened, included in the study and follow up at 3rd month.

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