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UNDERSTANDING CAUSES OF SUB-ACUTE COUGH IN COMMUNITY – A CLINICO-PATHOLOGICAL RESEARCH

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ABSTRACT Cough is one of the most common complaints of patients seeking medical attention. A number of patients attend our OPD for complaint of Sub acute cough lasting 3-8 weeks. Majority of such cough are due to Ear, Nose and Throat pathologies. This study aims to evaluate the Otorhinolaryngology causes of Cough in these patients. Inflammation of Sinuses (Acute/Sub-acute) and Gastro-oesophageal reflux disorder (Reflux) form a bulk of cases presenting with Sub-acute cough in community. Clinicians need to maintain a high degree of suspicion for these two most common entities in cough patients not responding to conventional line of management.

KEYWORDS : Cough, Acute Cough, Chronic Cough, Sub-acute cough, GERD, Chronic pharyngitis, Allergic cough, Reflux related, Asthmatic cough, Bronchitis, Post infectious, Non Post infectiou

Introduction

Cough is a protective airway reflex. A well known aphorism, that larynx is the "*watch dog of lungs*" refers to cough reflex that is triggered when ever any foreign object enters the air way. Stroke impairs the cough reflexes and predisposes to aspiration. Cough becomes a problem when it becomes a nuisance to the patient and causes social embarrassment or fatigue. Many a mutiparous women also suffer from urinary incontinence as a result of cough.

Objectives

1. To evaluate the causative factor for sub-acute cough, cough lasting 3-8 weeks
2. To categorize the class of patient who have specific Ear, Nose and Throat pathology as a cause of cough

Materials and Methods

The present study was done in ENT Out-Patient Clinic of B.K.L Walawalkar Rural Medical College. A total of 100 patients were selected from the pool of OPD attendees, who came to our centre from 1st August 2017 to 15th January 2018.

A questionnaire was circulated among the interns and residents of ENT, General Medicine departments, which was targeted our candidate patients. Detailed history was taken, and ENT and chest was evaluated. Chest X ray, ECG, 70 degree Rigid Laryngoscopy, Sputum smear examination was done on all cases, with Flexible fibre-optic Upper Gastro-endoscopy, X Ray PNS water's view, CT PNS, Barium swallow-meal, Throat swab and CT Chest for diagnosis, reserved for suspected cases like Acute Sinusitis, Lung malignancy, Vocal Cord palsy.

Patient Selection Criteria

1. History of Sub-acute cough – 3 to 8 weeks
2. No obvious cause like Tuberculosis (Any history of T.B or Sputum smear positives were excluded)
3. Patient's age less than 14 years, and more than 65 years, as this study focus on Adult population neither paediatric nor geriatric group
4. Any History or Laboratory evidence of Immuno-suppression like Diabetes or HIV as aetiopathogenesis of such cases is likely to be different.
5. With history of smoking and chronic cough were excluded from this study as most of these are cases of acute exacerbation of chronic bronchitis, again a non ENT problem.
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Observations

Cause of Cough

An attempt was made to identify the cause of cough in every patient. Of the 100 patients examined the most common identifiable cause of Sub-acute (3-8 week) cough was found to be Post-viral infection Sinusitis and a persistent post nasal drip leading to cough. The second major cause of cough found was Gastro-oesophageal Reflux Disease. The findings are tabulated under Table-1

A fraction of case did not have any evident cause of cough.

Table 1: Aetiologies of sub-acute cough. Multivariate analysis using Multiple regression coefficient "R" statistic MANOVA and Chi-square test using SPSS for statistical significance of data.

Cause of Sub-acute Cough	Total 100	Males % 45	Female % 55
Acute/ Sub-acute Sinusitis	34	15	19
Reflux GERD related	25	10	15
Allergic Cough / Asthmatic history	9	5	4
Upper Airway Cough Syndrome PND + Throat symptoms	6	2	4
Acute/ Chronic pharyngitis	3	2	1
Chronic laryngitis	1	0	1
Occupational cough	1	1	0
No cause identified	21	10	11

Predisposing factors identified in the clinical evaluation of the cases is illustrated in the table below.

Table2. Predisposing factors identified. MANOVA and Chi-square using SPSS

Predisposing factors for Sub-acute Cough	Total 100	Males % 45	Female % 55
Cold/ Coryza	39	20	19
Influenza/ Flu/ Viral fever	24	10	14
Spicy food intake (GERD)	44	23	21
Reflux / Regurgitation / Belching	25	9	16
Occupational exposure to allergens like farmers / industry/ construction workers (Allergic)	16	9	7
Pets / cattle at home (Allergic)	19	8	11
Smokers	15	15	0
Alcohol use	11	11	0
drug intake like ACE inhibitor, Beta blocker	12	7	5

As seen in the table the commonest predisposing factor appears to be a previous history of Cold or Coryza, and a history of viral fever. Influenza or Viral fever was prevalent in Konkan, during the winter months of 2012. A large percentage of responders also gave positive history of ingesting spicy foods. The exact contribution of this to the burden of cough remains to be seen. GERD was also found to be a common factor leading to Sub-acute cough. Positive history of Occupational exposure to allergens like farmers / industry/ construction workers was also found in a fraction of patient. Likewise keeping a pet animal at home also seems to contribute to Sub-acute cough.

Discussion

Questionnaire identified patients with Sub-acute cough as history evidence of cough lasting 3 to 8 weeks. History was also obtained for Symptoms of Sinusitis like Headache, Nose block, purulent nasal drip, Post-nasal drip, Cough increased at night, Bad odour in nose and Facial pain. Allergic history was inquired and any History of Sneezing, Itching, watering from nose, watery discharge from nose. Asthma was detected by history of Wheezing, Cough at night etc (1). Chest X ray done in all patients ruled out Lung causes of Sub-acute cough like Pneumonia and tuberculosis. Pertusis infection, Whooping cough as a cause of Sub-acute cough has been discussed in many literature. Pertusis is per se rare in adults in India, and as many studies point out laboratory diagnosis of Pertusis is difficult, because of time lapse between onset of disease and cough. Throat swabs become negative by the time cough sets in. (3)

The main culprit identified was Post viral infection Sinusitis leading to Post-nasal drip, facial pain, purulent nasal discharge and cough. This seems to be a common problem following episodes of common cold and viral (Flu) fever. Allergy seems to predispose development of sinusitis by prior congestion and oedema of Osteo-meatal unit. (4)

Gastro-oesophageal Reflux Disease is the second most common causative factor. Diagnosis is established by History and Endoscopic examination. Regression of cough and symptoms of acid reflux, regurgitation and belching with Proton Pump Inhibitors (PPI) and Prokinetics was taken to be a successful diagnostic criterion for GERD. (1)

Pure allergic cough was diagnosed in cases with positive history and examination features of Allergic Rhino sinusitis like Bluish hue and pallor of mucosa, Mulberry turbinates, Allergic muco- pus on endoscopy and Bilateral haziness in X ray PNS. Allergic pathology patients were treated with Antihistamines, Decongestants and Steroid sprays. (4)

Upper Airway Cough syndrome is a new entity where the cough is due to direct stimulation and irritation of larynx and pharynx. These set of patients have Post-nasal drip (Major criteria), Throat clearing (Second criteria) and throat congestion but no other clear evidence of Sinusitis. Current literature is unclear on the specific feature of this novel condition. (1) (7)

Pharyngitis was diagnosed on Clinical examination like congestion, granular, cobblestone pharyngeal wall etc and treated with Penicillin, Anti reflux medication and topical lozenges for cough.(1)
When patient gave strong history of Occupational exposure to dust / chemicals, with feature suggestive of Allergic manifestation, a diagnosis of Occupational cough was made, this was confirmed by clinical improvement of patient when they were away from work.(4)
In this study, Acute Bronchitis is a diagnosis of exclusion, should fit into the no cause identified column, excluding Pneumonia (Chest X ray and Fever) and acute asthma (Wheezing, Lung examination). Acute Bronchitis is medical problem outside ENT. (8)

Studies reveal that cough can have a variety of negative impact on life of the sufferers, main complication of cough include Pneumo-thorax, Laryngeal trauma, Lung herniation, Syncope, Arrhythmia, Splenic rupture, Hernia, Urinary incontinence, Rib fracture, Seizures, Headache, CSF rhinorrhea, petichiae and social embarrassment.

Once the cause is identifiable, targeted pharmacological therapy can allay the suffering of the patients of Sub-acute cough.

Conclusion

This study is a reminder to the clinician of the most common causes of Sub-acute cough in patients presenting in Otorhinolaryngology clinic. Sinusitis (Acute/Sub-acute) and Gastro-oesophageal reflux disorder (Reflux) form a bulk of cases presenting with Sub-acute cough in community. Clinicians need to maintain a high degree of suspicion for these two most common entities in cough patients not responding to conventional line of management.

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