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Cough Syncope: An Emerging Issue among Elders

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Abstract

Cough syncope incidence is increasing among males >45 years and is due to persistent irritant dry cough causing neurasthenia of Glassopharyngeal Nerve, epiglottis fatigue and raised Intra thoracic pressure substantiated by low serum Calcium, Vitamin D3, Vitamin B12. Warm milk with butter or ghreet as a sip at bed time and morning, proves worth in preventing cough and its consequent syncope as evidenced in comparative evaluation in 79 patients against conventional therapeutics.

Keywords: Syncope; Neuraesthenia; Glassopharyngeal Nerve; Neuro vitamins; Neurogen

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Introduction

Cough, a respiratory protective reflex presentation which sometimes become encumbrance [1,2]. As these cough reflex is regulated by Vagus nerve [3,4] and during coughing active epiglottis movement remain a prime need. Increasing dietary non nutrient content and changing life style posing deficiency of Vitamin D, Serum calcium and various Neuro vitamins leading to deficient neuronal function and neurasthenia. Repeated persistent cough causes epiglottis inactivity and respiratory distress followed with sudden unconsciousness and convulsion in elderly persons. The present therapeutic remain an obligatory therapeutics i.e., prevention of cough but incidence remain unchanged as allergic cough has no option. Cough remedies consisting anti allergic, anti-secretary and anti-jussive, causes drying of throat and irritation of pharyngeal nerve which induces rebound persistent cough and epiglottis asthenia resulting in syncope. Theories proposed include various consequences of the marked elevation of intrathoracic pressures induced by coughing: diminished cardiac output causing decreased systemic blood pressure and, consequently, cerebral hypo perfusion; increased Cerebrospinal Fluid (CSF) pressure causing increased extravascular pressure around cranial vessels, resulting in diminished brain perfusion; or, a cerebral concussion-like effect from a rapid rise in CSF pressure. More recent mechanistic studies suggest a neurally mediated reflex vasodepressor-bradycardia response to cough. Since loss of consciousness is a direct and immediate result of cough, elimination of cough will eliminate the resultant syncopal episodes. In the present scenario a natural demulcent been evaluated in checking cough reflex and throat irritation with 3 years of vigil follow up to adjudge the efficacy and safety profile.

Material and Methods

Cases of cough syncope presenting with recurrent attack of unconsciousness and convulsion preceded with persistent cough which usually recovers within few minutes, attending at RA Hospital and Research Centre and have taken multiple medication without any relief, were thoroughly interrogated regarding the illness and therapeutics taken, clinically examined and investigated.

Blood for absolute eosinophil count

Throat swab; X-ray Chest; ECG; 24 h holter (for sick sinus); EEG; Blood for Serum Calcium; Vitamin D3; Vitamin B12; Basic hematology; hepatic and renal parameters.

Considering syncope as a result of hypoxia caused by persistent dry hacking cough so therapeutic modalities must be to check cough.

Selected patients were classified in two groups and were advocated as per:

Group A: Conventional therapeutics to check cough;

Group B: Only warm milk 1 cup with 2 ml ghreet or butter and seeped.

Each patient were given a follow up card to record the incidence of cough and syncope during the study and 2 year post therapy follow up. To adjudge the safety profile of the therapy patient's hematology, hepatic and renal profile were repeated

Results

Selected patients were of age group 45-65 and male predominates over the female i.e., 0:19 (approximately 4:1) Majority 68.4% was of age group 50-60 years and 17.7% patients were of age >60 years **(Table 1 and Figure 1)**.

Out of all 16.5% were suffering since <1 year while 7.6% were since >7 years and majority more than 1 year **(Table 2)**. Majority 28 (35.4%) were having 15-20 syncope in a year while 7.6% and 10.2% were with <10 attack and >25 attacks per year respectively **(Table 3)**. Among the selected cases 97% were non diabetic having blood sugar (PP) <170 mg%, 52% were with serum Calcium <8 mg%, 78% shows Vitamin D3 <12 ng/dl, 94% with >10 g% hemoglobin, 94% shows absolute eosinophil count >300/dl with X–ray suggestive of Eosinophilic lung or allergic bronchitis **(Tables 4-7)**.

Discussion

Cough, a protective respiratory reflex but persistent vigorous cough increases intrathoracic pressure up to 300 mmHg and expiratory velocity up to 800 km/h. During compression phase of cough closure of larynx is associated with contraction of chest wall, diaphragm and abdominal wall resulting in increased

Table 1: Age and sex wise distribution of patients.

Age group	Number of patients		Total
	Male	Female	
45-50 years	9	2	11
50-55 years	22	8	30
55-60 years	19	5	24
60-65 years	10	4	14

Figure 1 Pie diagram showing sex wise distribution.

Table 2: Distribution of patients as per duration of illness.

Duration of illness (in years)	Number of patients		Total
	Male	Female	
<1	10	3	13
1-3	24	8	32
3-5	13	2	15
5-7	9	4	13
>7	4	2	6

Table 3: Distribution of patients as per number of syncope/years.

Number of Syncope/year	Number of patients
<10	6
Oct-15	25
15-20	28
20-25	12
>25	8

Table 4: Distribution of patients as per their biochemical parameters.

Biochemical parameters	Number of patients	Male	Female	Total
Blood sugar (PP)	<170 mg%	58	19	77
	>170 mg%	2	-	2
Serum calcium	<9 mg%	24	17	41
	>9 mg%	36	2	38
Serum potassium	<5.5 meq/L	60	19	79
	>5.5 meq/L	-	-	-
Serum Vitamin B12	<110 pg/dl	-	-	-
	>110 pg/dl	60	19	79
Serum vitamin D3	<12 ng/dl	45	17	62
	>12 ng/dl	15	2	17
Blood urea	<40 mg	60	19	79
	>40 mg	-	-	-
Lipid profile				
Serum cholesterol	>200 mg	-	-	-
	<200 mg	60	19	79
HDL	<80 mg	60	19	79
	>80 mg	-	-	-
LDL	<130 mg	60	19	79
	>130 mg	-	-	-

Table 5: Shows hematological status.

Hematological parameters	Number of patients		Total
	Male	Female	
Hemoglobin			
<10 g	01	04	05
>10 g	59	15	74
Absolute eosinophil			
<300/cmm	02	-	02
>300/cmm	58	19	77

Table 6: Shows radiological finding.

X-ray chest radiological status	Number of patients		Total
	Male	Female	
Eosinophilic changes	58	19	77
Normal	2	-	2

Table 7: Shows outcome of the study.

Particulars	Number of patients	
	Group A	Group B
Syncope	None	None
Cough	39	None
Untoward effects		
Pain in chest	24	None
Breathlessness	24	None
Urination during cough	06	None

intrathoracic pressure while expiratory phase glottis open and increases expiratory air flow yielding coughing sound [5].

Diaphragm is innervated by Phrenic Nerve and external intercostals muscles by segmental intercostals nerve, contract and create negative pressure around the lung which permit air rush to equalize the pressure.

The glottis closes (muscle innervated by Recurrent Laryngeal Nerve) and vocal cord contracts to enter the larynx, the vocal cord relaxes and open the larynx releasing air at over 100 mph [6]. Cough centers located at the upper brain stem and Vagus cooling blocks the cough by selectively abolishing the activity in the myelin fibre with retained C-fibre activity.

Majority patients presenting with Cough syncope shows declined Serum Calcium, Vitamin D3 and Vitamin B12 and increased absolute eosinophil count, x ray chest suggestive of allergic bronchitis or eosinophilic lung. No patient revealed any alteration in ECG and EEG findings. Recurrent dry cough may be due to raised absolute eosinophil count while syncope attributed to transient anoxia due to closure of Glottis due to hypoaesthesia of Glassopharyngeal or Vagus Nerve due to declined level of Neuro transmitter, Calcium and Neurovitamin B12.

Recurrent persistent cough further increases Glassopharyngeal Nerve weakness but supportive ionic Calcium, Neurovitamin and Neurogen declined syncope even after agonizing cough. Patients taking warm milk with ghreet or butter as sip had complete relief of cough and were free of any syncope whether patient taking cough remedies and anti eosinophilic drug non had complete check either on cough or cough syncope as rebound dryness of mouth due to anticholinergic and antihistaminics, causes throat irritation and irritative cough but ghrit sooths the throat and calm the cough reflexes vagus cooling checks the cough reflex and prevent consequent cough syncope.

Conclusion

Cough syncope is usually due to neuroasthenia of Glassopharyngeal Nerve caused by persistent dry hacking cough. Substantiated by low Serum Calcium, Vitamin D3 and Vitamin B12, which is more promptly checked by milk with ghreet regularly at bed time due to its soothing effect on the pharynx which check irritation and check irritant cough as evidenced in comparative evaluation with conventional therapeutics with a 3 years of vigil follow up.

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