Assessing an elderly with dyspnea

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Introduction

- Dyspnea is a sensation of breathing difficulty or discomfort regarded as inappropriate by the patient
- Aging is associated with a progressive decrease in lung function, but this decrease is heterogeneous between individual subjects
- There are many ways which induce dyspnea
- The presentation of respiratory disorders may differ in the elderly
- Performing pulmonary function tests in older patients is often difficult
- Dyspnea is one of the more common symptom in cancer patients

PHYSIOLOGICAL CHANGES ACCORDING TO AGE

- **Pulmonary function**

✓ Functional residual capacity and residual volumes both increase

✓ There is an increased tendency in airway closure at small volumes (senile emphysema) and a decline in test of forced expiration even in non smoker women.

✓ Loss of diaphragmatic mass and strength

- **Cardiovascular changes**

✓ Decrease of myocyte number, intrinsic contractility, coronary flow reserve, venticular compliance and ß-adrenoreceptor mediated modulation of inotropy

✓ Stroke volume increases rather than heart rate

Main etiologies in elderly patients with cancer

- **Directly related to cancer**
  - Lung tumour, pleura metastasis
- **Related to treatment**
  - Pulmonary interstitial or vascular injury
  - Myocardial toxicity
- **Not related to cancer or treatment**
  - Effects due to pain, weakness, anemia, skeletal muscles deconditionning
- **Tobacco related comorbidities**
  - Chronic obstructive pulmonary disease
  - Ischemic heart failure

Clinical evaluation

- **Clinical examination**
- Dyspnea scales
- MRC (**Medical Research Council) Dyspnea scale**
- BDI :Baseline Dyspnea Index
- Dyspnea Lung Cancer Symptom Scale (LCSS)

MRC (**Medical Research Council**)

- **1** Not troubled by breathlessness except on strenuous exercise
- **2** Short of breath when hurrying or walking up a slight hill
- **3** Walks slower than contemporaries on level ground because of breathlessness, or has to stop for breath when walking at own pace
- **4** Stops for breath after walking about 100m or after a few minutes on level ground
- **5** Too breathless to leave the house, or breathless when dressing or undressing
- MRC relates dyspnea only to the level of activity

Baseline Dyspnea Index

- Grade 4 : No impairment. Able to carry out usual activities and occupation without shortness of breath
- Grade 3: Slight impairment. Distinct impairment in at least one activity but no activities completly abandoned. Reduction slight or not clearly caused by shortness of breath
- Grade 2: Moderate impairment. Patient has changed jobs and/or has abandoned at least one usual activity due to shortness of breath
- Grade 1: Severe impairment. Patient unable to work or has given up most or all activity due to shortness of breath
- Grade 0: Very severe impairment. Unable to work and has given up most of all activity due to shortness of breath
- BDI relates dyspnea the level of activity considering also the associated effort necessary for the activity

Dysnea scale : LCSS

- The **LCSS** is designed as a site-specific measure of quality of life (QL), particularly for use in clinical trials. It evaluates six major symptoms associated with lung malignancies and their effect on overall symptomatic distress, functional activities, and global QOL
- Visual analogue scale (10 cm horizontal line). Patient puts a mark on line to indicate intensity of response to the items in question

  (0 = lowest rating; 10 = highest rating).

Use of LCSS is quite simple

Results of LCSS at baseline in 4 GFPC trials in elderly patients with advanced NSCLC (GFPC: Groupe Français de PneumoCancerologie)

Symptom Mean score/10	GFPC 0202a (n=44/50pts)	GFPC 0202b (n=44/50pts)	GFPC 0504 (n=99/100 pts)	GFPC 0505 (n= 94/100pts)
Appetite	3.45	3.15	4.9	4.31
Pain	1.7	1.85	2.64	2.19
Fatigue	4.15	3.65	4.46	4.53
Dyspnea	**3.55**	**3.25**	**2.47**	**3.56**
Hemoptysis	0.05	0.1	0.51	0.34
Cough	2.3	1.1	1.8	2.82

Non clinical evaluations

- Abnormal chest radiograph
- Blood hemoglobin concentration < 100gl)
- Cardiopulmonary resting tests
  - Resting spirometry (FEV1 <80% predictive)
  - Resting oxyhemoglobin test (<90%)
  - Electrocardiographic
- Cardiopulmonary exercise tests
  - VO2 max
  - Six minutes walk

Prevalence and correlates of respiratory symptoms and disease in the elderly

P.L Enright et al Chest 1994 : The Cardiovascular Health Study

- 5201 elderly participants between may 1989 and june 1990
- Mean age 72.5 years, 13% >80 years,45% men
- 12% current smokers, 42 % former smokers, 47 % never smokers
- Prevalence of attack of wheezing 8%, of grade 3 dyspnea 10%
- Prevalence of lung disease in current smokers 12%
- Attack of wheezing is strongly associated with a lower FEV1, coronary heart disease, heart failure
- Grade 3 dyspnea on exertion was positively associated with older age, chronic bronchitis , low FEV1 , pack years of smoking and cardiovascular disease

6-mn walk test in elderly:

CHS study on 3333 patients (P-L Enright et al Chest 2003)

- The 6-mn walk test reflects the capacity to under take day-to-day activities or conversely functionnal limitation
- A lower 6MNWT was correlated independently with older age, higher weight, weaker grip strength, depression, decreased mental status
- Independent diseases or risk factors were arthritis, diastolic hypertension, lower FEV1
- Bivariate association with lower 6MNWT were impaired activities of daily living, coronary heart disease, transient ischemic attaks, stroke and diabetes

CONCLUSIONS

- Pulmonary function tests like spirometry in older patients is often difficult
- 6-mn walk test is a quick and inexpensive performance-based measure and an important component of quality of life
- Dyspnea assessment in elderly must be studied in association with global geriatric assessment
- Dyspnea is a common complaint with negative influence on daily functionning and QOL and requires prompt and adequate pharmacological intervention

Thanks for your attention

Benny Carter

More than 88 years