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**VI REUNIÓN DE EPOC**
**Barcelona**
**17-18 de Marzo de 2011**

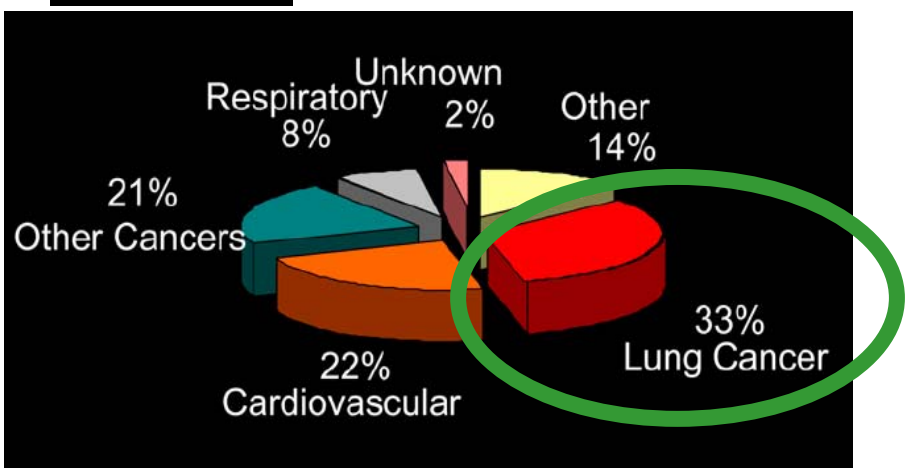
# EPOC Y CANCER DE PULMÓN

TABLE 2. REPORTED CAUSES OF MORTALITY IN PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE (%)

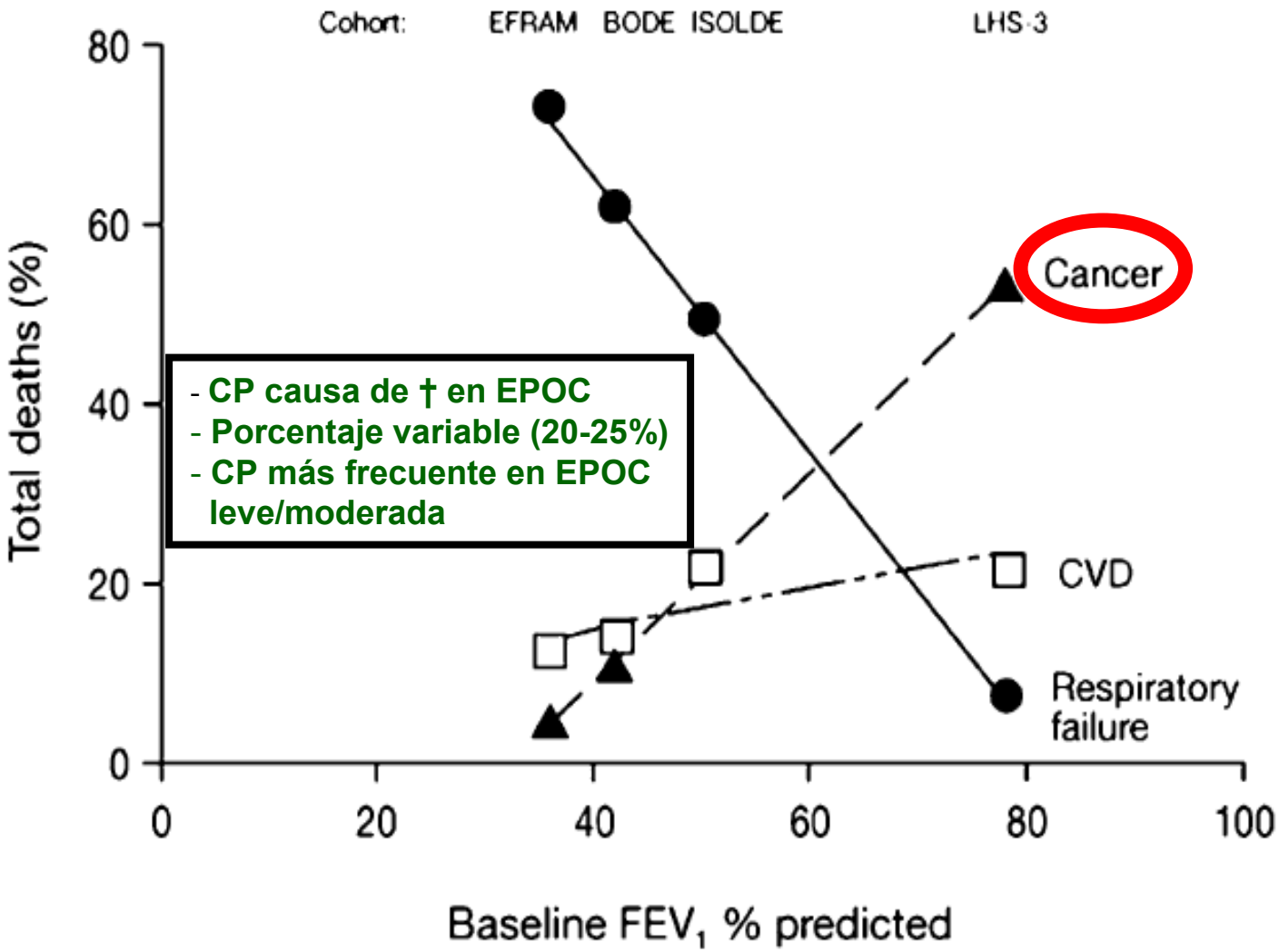
| Author | Site | Patients with COPD Dying | Cause: COPD (%) | Cause: Cardiovascular (%) | Cause: Malignancy (%) | Cause: Other Respiratory (%) |
|---|---|---|---|---|---|---|
| Mannino and colleagues (14) | United States | 1.1 million | 43 | 26 | 8 | — |
| Hansell and colleagues (17) | England | 312,000 | 60 | 26 | 8 | 4 |
| Camilli and colleagues (116) | Tucson | 86 | 23 | 42 | 9 | 26 |
| Huiart and colleagues (15) | Canada | 2,000 | 14 | 38 | — | — |
| Anthonisen and colleagues (8) | United States | 149 | < 15 | 25 | 60 | — |
| Zielinski and colleagues (41) | Europe | 215 | 38 | 27 | 7 | 21 |
| Waterhouse and colleagues (120) | Europe | 103 | 49 | 22 | 21 | — |
| Keistinen and colleagues (118) | Europe | 973 | 22 | 37 | 21 | 4 |
| Vilkman and colleagues (117) | Europe | 1,070 | 30 | 37 | 20 | — |
| Celli and colleagues (119) | United States, Spain, Venezuela | 162 | 61 | 14 | 12 | — |

*Chatila WM et al. Proc Am Thorac Soc. 2008;5:549-55*

**LHS, 2005**




*Rodríguez-Roisín R, et al. Proc Am Thorac Soc. 2008;5:842-47*




*Rodríguez-Roisín R, et al. Proc Am Thorac Soc. 2008;5:842-47*

# PREVALENCIA DE EPOC EN PACIENTES CON CÁNCER DE PULMÓN

## *Superior a la población general: 50-65%*

***Diez Herranz A. EPOC y cáncer de pulmón: implicaciones prácticas. Arch. Bronconeumol. 2001;37:240-7***

***Loganathan RS, et al. Prevalence of COPD in women compared to men around the time of diagnosis of primary lung cancer. Chest. 2006; 129:1305-12***

| Autor | Año | Referencia bibliográfica | Población | Resultados |
|---|---|---|---|---|
| Romero et al | 1981 | 2 | CP general | $FEV_1$ medio 64,5%, $FEV_1$/VC 59,9%, MMEF 45%.<br>$FEV_1$ < 2 l en el 65% de casos, < 1 l 13%<br>$FEV_1$/VC < 65% en el 50% de casos, < 50% en 21%,<br>$FEV_1$ < 75% en 34% de casos |
| Samet et al | 1986 | 3 | CP general | BC 23,2%, enfisema 23,4%, BC o enfisema 36,6% |
| Skillrud et al | 1986 | 4 | CP general | $FEV_1$ medio 45,8-47,2%; el 100% tiene $FEV_1$ < 65% |
| Tockman et al | 1987 | 5 | Muertos CP | $FEV_1$ < 60% + $FEV_1$/FVC < 60% en el 65,9% de casos |
| Wu et al | 1988 | 6 | M adenoca | BC 32,7%, enfisema 5,4% |
| Sánchez de Cos et al | 1989 | 7 | CP general | BC 67,5% |
| Díez Herranz | 1989 | 8 | CP operado | EPOC 30% |
| Lange et al | 1990 | 9 | Muertos CP | $FEV_1$ < 80% en el 52,4% de casos |
| Osann | 1991 | 10 | M CP general | BC, enfisema o neumonía en el 35% de casos |
| Alavanja et al | 1992 | 11 | M CP general NF | BC 8%, enfisema 5% |
| Michils et al | 1992 | 12 | CP general | $FEV_1$/FVC < LIN en el 83,5% de casos |
| Dangubic et al | 1993 | 13 | CP general | Obstrucción bronquial en el 64% (grave en el 21%) |
| Bechtel et al | 1994 | 14 | CP oculto | EPOC en el 45,1% de casos |
| Wu et al | 1995 | 15 | M CP general NF | BC 10,5%, enfisema 2% |
| Congleton y Muers | 1995 | 16 | CP general | $FEV_1$ < 70% + $FEV_1$/FVC < 64% en el 49% de casos;<br>$FEV_1$ medio 1,55 l (66,4%); $FEV_1$/FVC medio 62,5% |
| Janssen et al | 1998 | 17 | CP general | EPOC 22% |
| Aller Álvarez et al | 2000 | 18 | CP general | OCFA 50,3% |

# PREVALENCIA DE EPOC EN PACIENTES CON CÁNCER DE PULMÓN

***Young RP et al. COPD prevalence is increased in lung cancer, independent of age, sex and smoking history. Eur Resp J. 2009;34:380-6***

**TABLE 1** Summary of characteristics of the lung cancer cases and control smokers before and after matching

| Parameter | | | | cohorts | p-value[#] |
|---|---|---|---|---|---|
| | | | | Lung cancer | |
| **Subjects n** | | | | 301 | |
| **Males %** | | | | 53 | |
| **Age yrs** | | | | 65±9 | 0.23 |
| **Height cm** | | | | 168±0.08 | 0.58 |
| **Weight kg** | | | | 71±16 | <0.001 |
| **Smoking history** | | | | | |
| Age started smoking yrs | 18±4 | 17±4 | 18±4 | 18±4 | 0.62 |
| Cigarettes·day$^{-1}$ | 17±9 | 20±10 | 20±7 | 19±9 | 0.33 |
| Current smokers % | 24 | 35 | 22 | 39 | <0.001 |
| Pack-yrs | 35±20 | 41±25 | 38±18 | 38±18 | 0.93 |
| **Lung function** | | | | | |
| $FEV_1$ L | 2.84±0.82 | 1.86±0.69 | 2.56±0.80 | 1.90±0.69 | <0.001 |
| $FEV_1$ % pred | 97±18 | 73±23 | 96±20 | 71±23 | <0.001 |
| $FEV_1$/FVC % | 81±9 | 64±13 | 80±10 | 64±13 | <0.001 |
| **Prevalence of COPD %** | | | | | |
| GOLD 1+ | 10 | 60 | 15 | 65 | <0.001 |
| GOLD 2+ | 6 | 51 | 8 | 50 | <0.001 |
| GOLD 3+ | 1.2 | 14 | 1.3 | 15 | <0.001 |
| **History of comorbidities %** | | | | | |
| Chronic bronchitis | 5 | 18 | 6 | 16 | <0.001 |
| Asthma | 12 | 12 | 11 | 13 | 0.45 |

**50-70%**

**- Hombres y mujeres**

**- No solo por tabaco**

# LA EPOC COMO FACTOR DE RIESGO DE CÁNCER DE PULMÓN. FEV1

***Wasswa-Kintu S et al. Relations between reduced forced expiratory volume in one second and the risk of lung cancer: a systematic review and meta-analysys. Thorax.2005;60:570-75.***

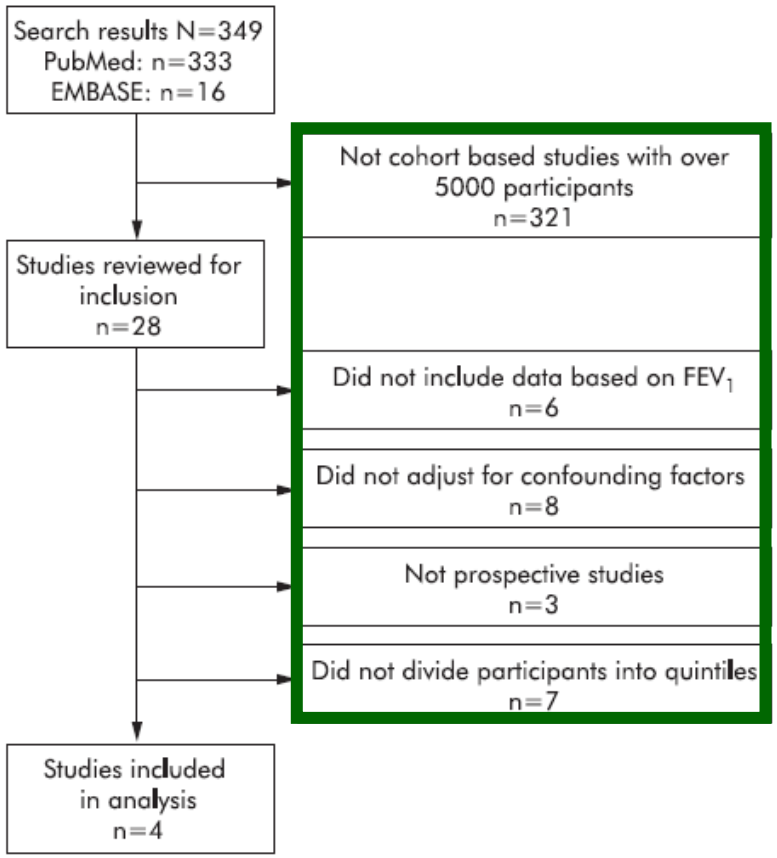



**Figure 1** Study selection process. $FEV_1$, forced expiratory volume in 1 second.

# LA EPOC COMO FACTOR DE RIESGO DE CÁNCER DE PULMÓN. FEV1

***Wasswa-Kintu S et al. Relations between reduced forced expiratory volume in one second and the risk of lung cancer: a systematic review and meta-analysys. Thorax. 2005;60:570-75.***

**Table 2** Lung function levels (% predicted) in quintile groups for each study

| | Quintile 1 | Quintile 2 | Quintile 3 | Quintile 4 | Quintile 5 |
|---|---|---|---|---|---|
| Men | | | | | |
| Hole[10] | ⩽73 | 74–87 | 88–97 | 98–108 | >108 |
| Kuller[11]* | ⩽73 | 74–85 | 86–93 | 94–101 | ⩾102 |
| Mannino[12] | ⩽75 | 76–85 | 86–92 | 93–101 | ⩾102 |
| Van Den Eeden[13]* | ⩽66 | 67–79 | 80–93 | 94–104 | ⩾104 |
| Women | | | | | |
| Hole[10] | ⩽74 | 75–89 | 90–100 | 101–112 | ⩾113 |
| Mannino[12] | ⩽77 | 78–87 | 88–94 | 95–103 | ⩾103 |
| Van Den Eeden[13]* | ⩽60 | 61–75 | 76–85 | 86–99 | ⩾100 |

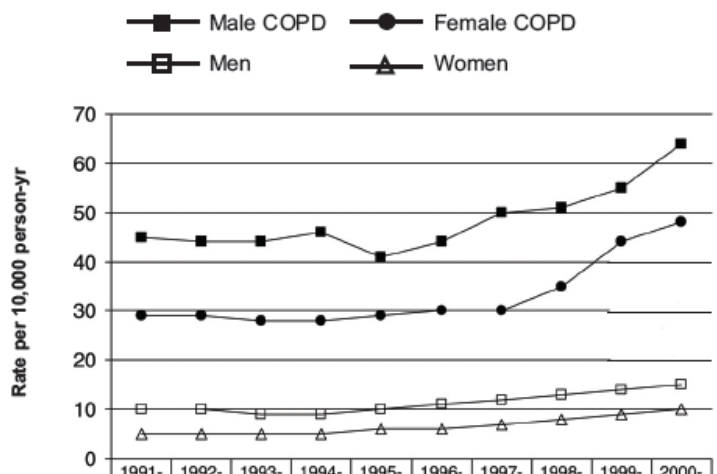
**Table 3** Relative risk (with 95% confidence interval) of lung cancer for men and women in different quintiles of lung function

| | Quintile 1 | Quintile 2 | Quintile 3 | Quintile 4 | Quintile 5 |
|---|---|---|---|---|---|
| Men | | | | | |
| Hole[10] | 2.53 (1.68 to 3.82) | 1.93 (1.27 to 2.94) | 1.80 (1.17 to 2.77) | 1.36 (0.86 to 2.16) | 1.00 |
| Kuller[11] | 3.56 (1.02 to 12.43) | 2.44 (1.17 to 5.05) | 2.80 (1.32 to 5.93) | 0.50 (0.11 to 2.34) | 1.00 |
| Mannino[12] | 3.16 (1.20 to 8.33) | 1.03 (0.35 to 3.06) | 1.11 (0.35 to 3.46) | 0.94 (0.29 to 3.10) | 1.00 |
| Van Den Eeden[13] | 1.86 (1.32 to 2.64) | 1.60 (1.35 to 1.90) | 1.45 (1.20 to 1.75) | 1.34 (1.04 to 1.72) | 1.00 |
| Pooled summary | 2.23 (1.73 to 2.86) | 1.67 (1.42 to 1.93) | 1.54 (1.30 to 1.82) | 1.30 (1.05 to 1.62) | 1.00 |
| Women | | | | | |
| Hole[10] | 4.39 (1.86 to 10.38) | 4.14 (1.73 to 9.87) | 4.01 (1.68 to 9.58) | 3.63 (1.51 to 8.76) | 1.00 |
| Mannino[12] | 5.99 (0.75 to 47.94) | 8.58 (1.09 to 67.36) | 8.76 (1.09 to 70.11) | 1.08 (0.07 to 17.29) | 1.00 |
| Van Den Eeden[13] | 1.95 (0.32 to 11.70) | 1.45 (0.27 to 7.69) | 1.80 (0.52 to 6.30) | 1.55 (0.41 to 5.81) | 1.00 |
| Pooled summary | 3.97 (1.93 to 8.25) | 3.71 (1.80 to 7.69) | 3.46 (1.75 to 6.75) | 2.64 (1.30 to 5.31) | 1.00 |
| Pooled summary for men and women | 2.36 (1.88 to 3.00) | 1.72 (1.48 to 1.99) | 1.62 (1.38 to 1.90) | 1.38 (1.13 to 1.70) | 1.00 |

# LA EPOC COMO FACTOR DE RIESGO DE CÁNCER DE PULMÓN

***Kiri VA et al. Recent trends in lung cancer and its association with COPD: an analysis using the UK GP Research Database. Primary Care Respiratory Journal. 2010; 19:57-61***

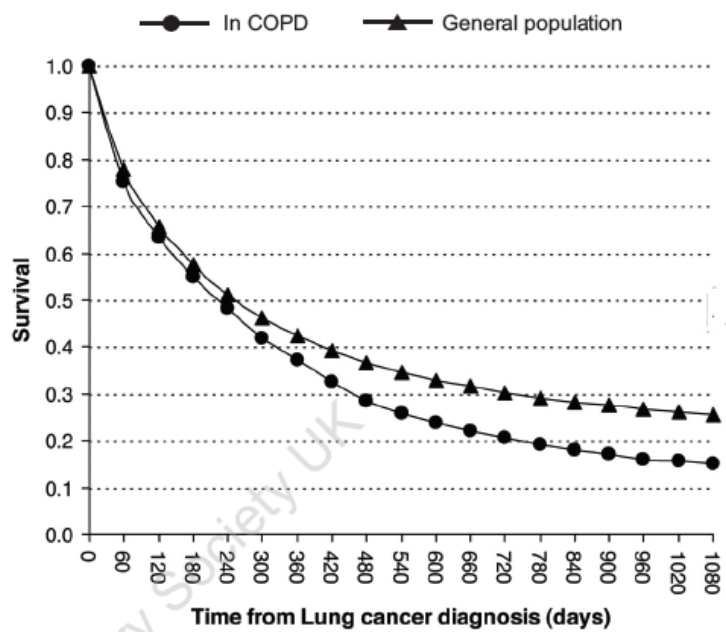
**Figure 1. Incidence (per 10,000) of lung cancer in the general population and in those with a prior diagnosis of COPD by gender: 5 year moving averages (1991-2004).**




| | 1991-1995 | 1992-1996 | 1993-1997 | 1994-1998 | 1995-1999 | 1996-2000 | 1997-2001 | 1998-2002 | 1999-2003 | 2000-2004 |
|---|---|---|---|---|---|---|---|---|---|---|
| Male COPD | 45 | 44 | 44 | 46 | 41 | 44 | 50 | 51 | 55 | 64 |
| Men | 10 | 10 | 9 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| Female COPD | 29 | 29 | 28 | 28 | 29 | 30 | 30 | 35 | 44 | 48 |
| women | 5 | 5 | 5 | 5 | 6 | 6 | 7 | 8 | 9 | 10 |

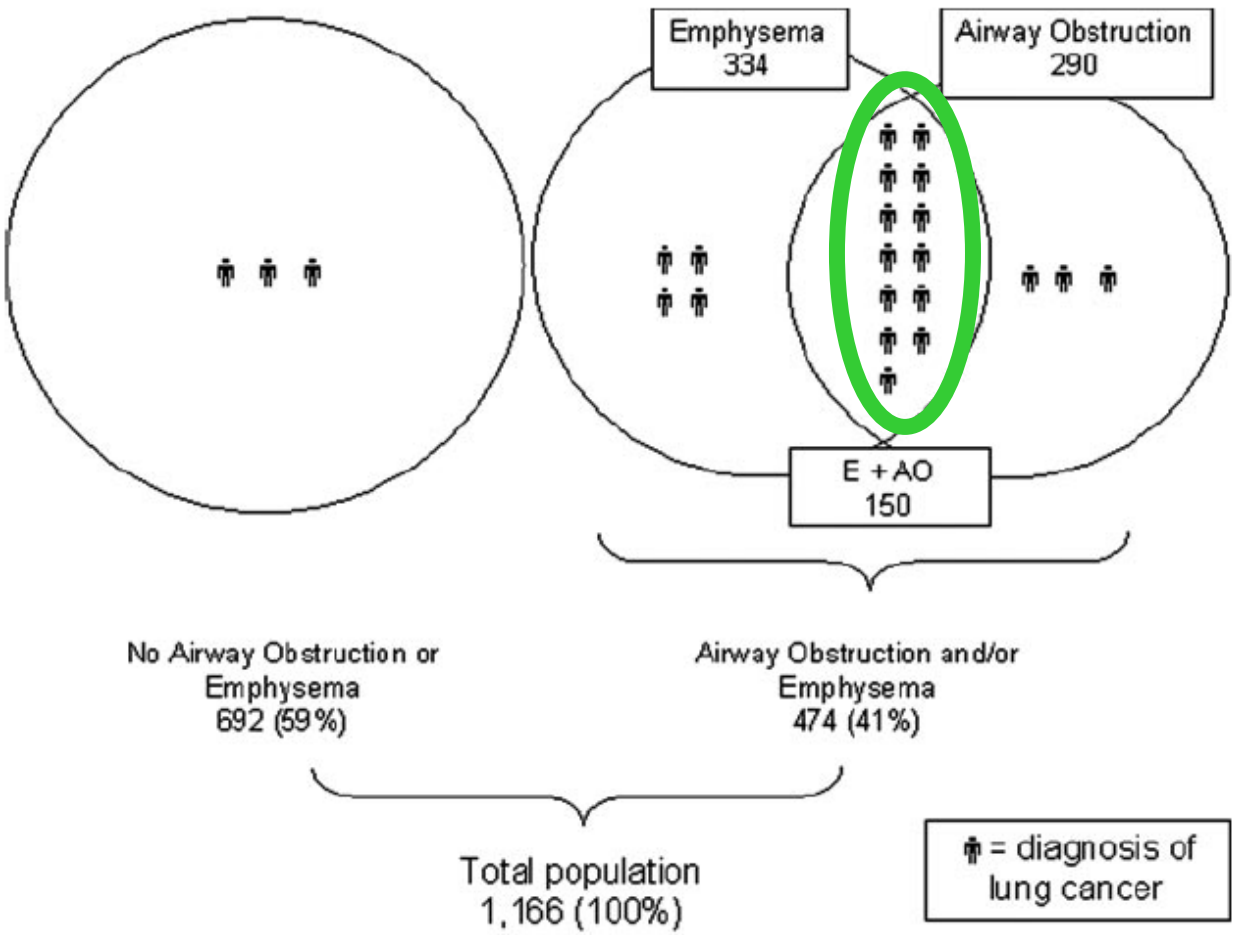
Year

**Figure 2. Three-year survival of lung cancer patients in the general population and in those with a prior diagnosis of COPD.**



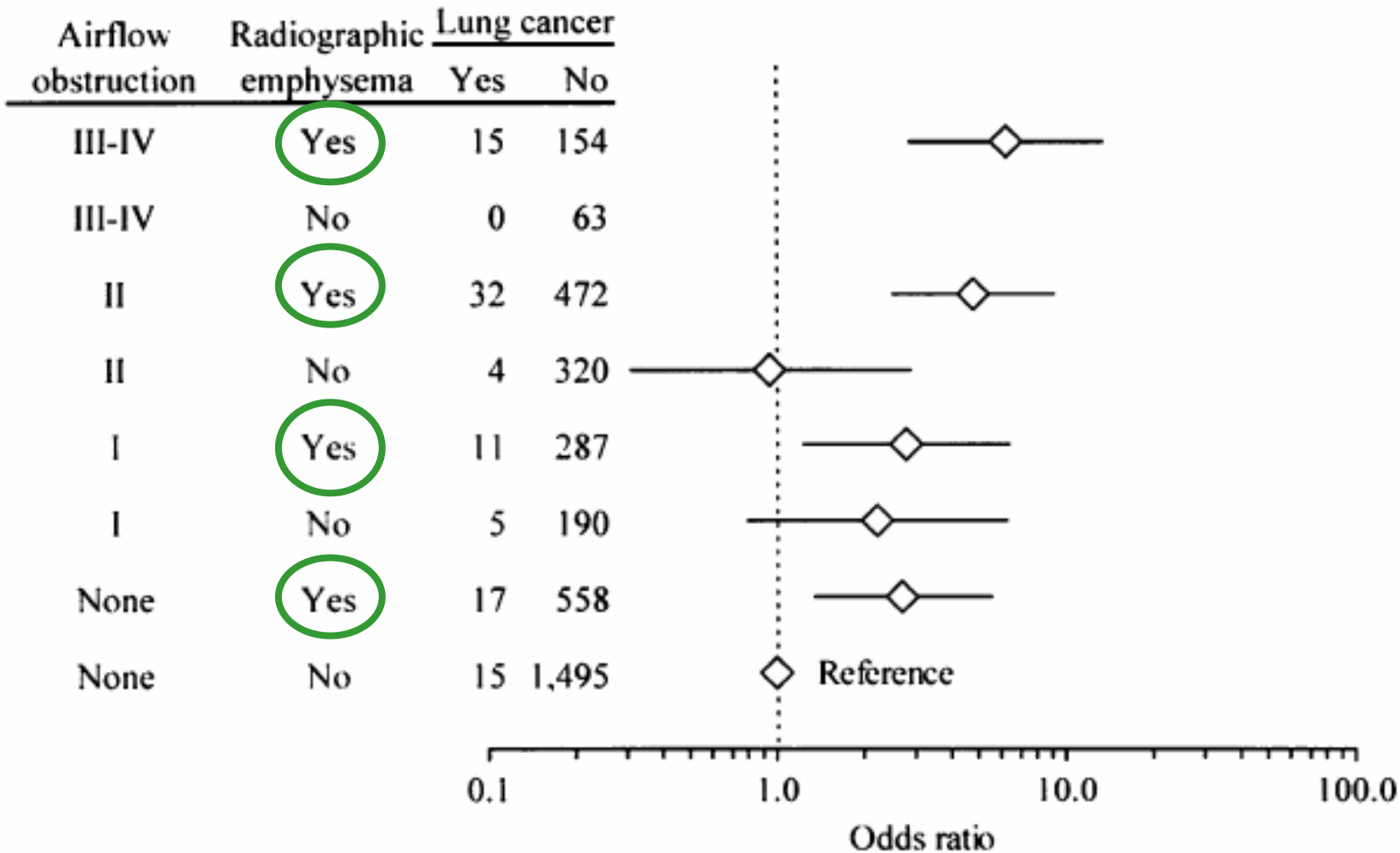
# LA EPOC COMO FACTOR DE RIESGO DE CÁNCER DE PULMÓN. ENFISEMA

***De Torres JP et al. Assesing the relationship between lung cancer risk and emphysema detected on low-dose CT of the chest. Chest. 2007;132:1932-38.***



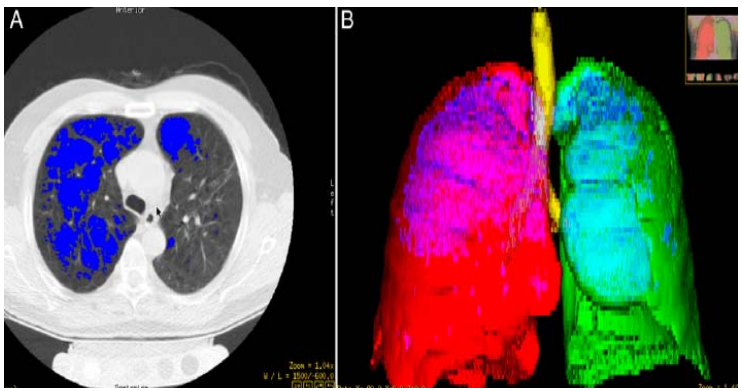
# LA EPOC COMO FACTOR DE RIESGO DE CÁNCER DE PULMÓN. ENFISEMA

***Wilson DO et al. Association of radiographic emphysema and airflow obstruction with lung cancer. Am J Resp Crit Care. 2008;178:738-44.***



# LA EPOC COMO FACTOR DE RIESGO DE CÁNCER DE PULMÓN. ENFISEMA

***Maldonado F et al. Are airflow obstruction and radiographic evidence of emphysema risk factors for lung cancer. A nested case-control study using quantitative emphysema analysis. Chest. 2010; 138:1295-302***




| Study | Study Design | No. of Patients | Sex M (F), % | With Lung Cancer | Without Lung Cancer |
|---|---|---|---|---|---|
| Maldonado et al | Nested case-control study | 441 | 38 (62) | 64 | 377 |
| Wilson et al[6] | Retrospective cohort study | 3,638 | 51 (49) | 99 | 3,539 |
| de Torres et al[4] | Retrospective cohort study | 1,166 | 74 (26) | 23 | 1,143 |

| Emphysema Variable | Airflow Obstruction Variable | Association With Emphysema | Association With Airflow Obstruction |
|---|---|---|---|
| Continuous (blinded) | Continuous and categorical ordinal | No | Yes |
| Categorical ordinal and dichotomous (blinded) | Categorical ordinal and dichotomous | Yes | Yes |
| Dichotomous (blinded) | Dichotomous | Yes | No |

# COPD and Lung Cancer Among Women

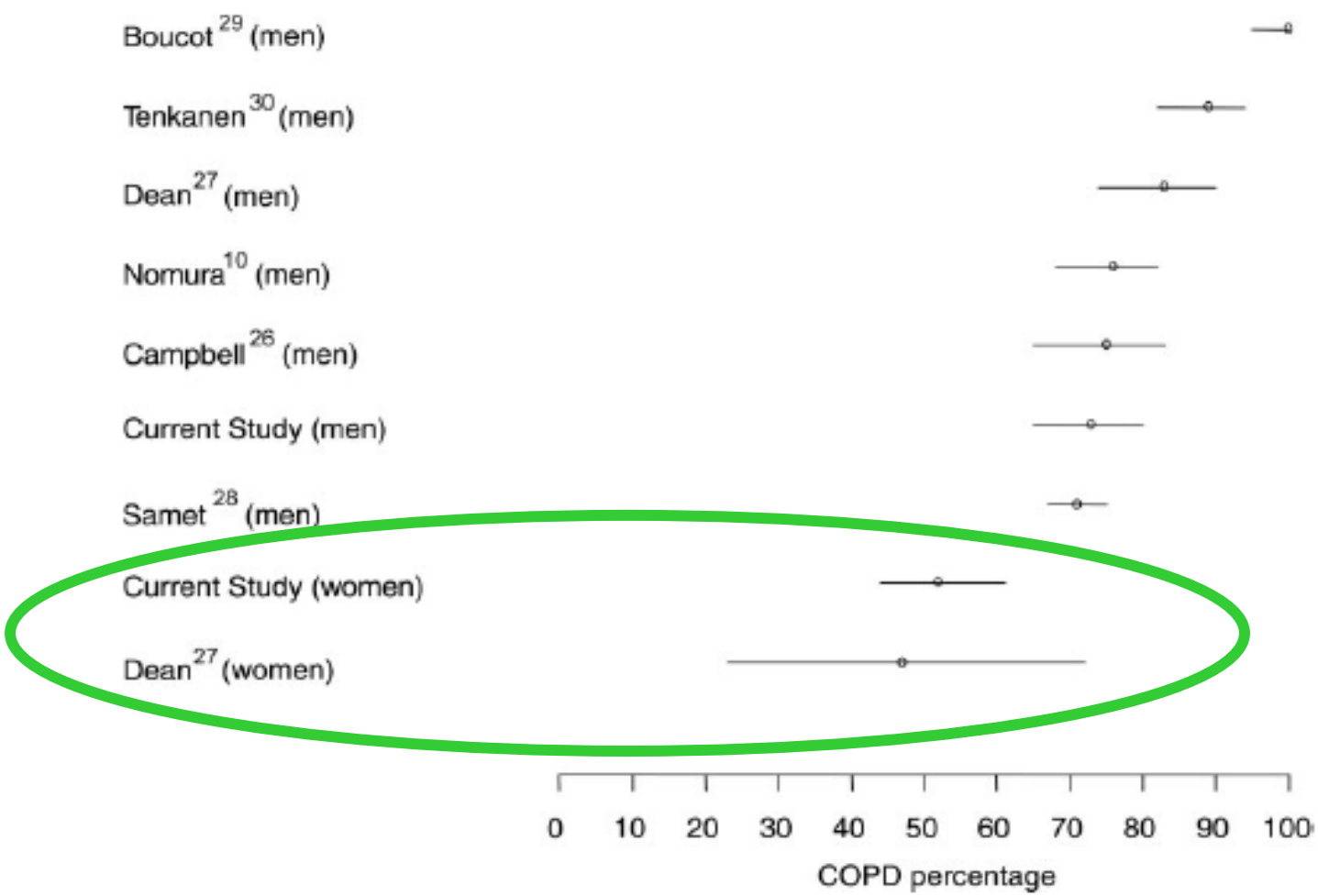
## *An Equal Opportunity Risk?*

*David M. Mannino, MD*

*Journal of Thoracic Oncology* • Volume 4, Number 3, March 2009

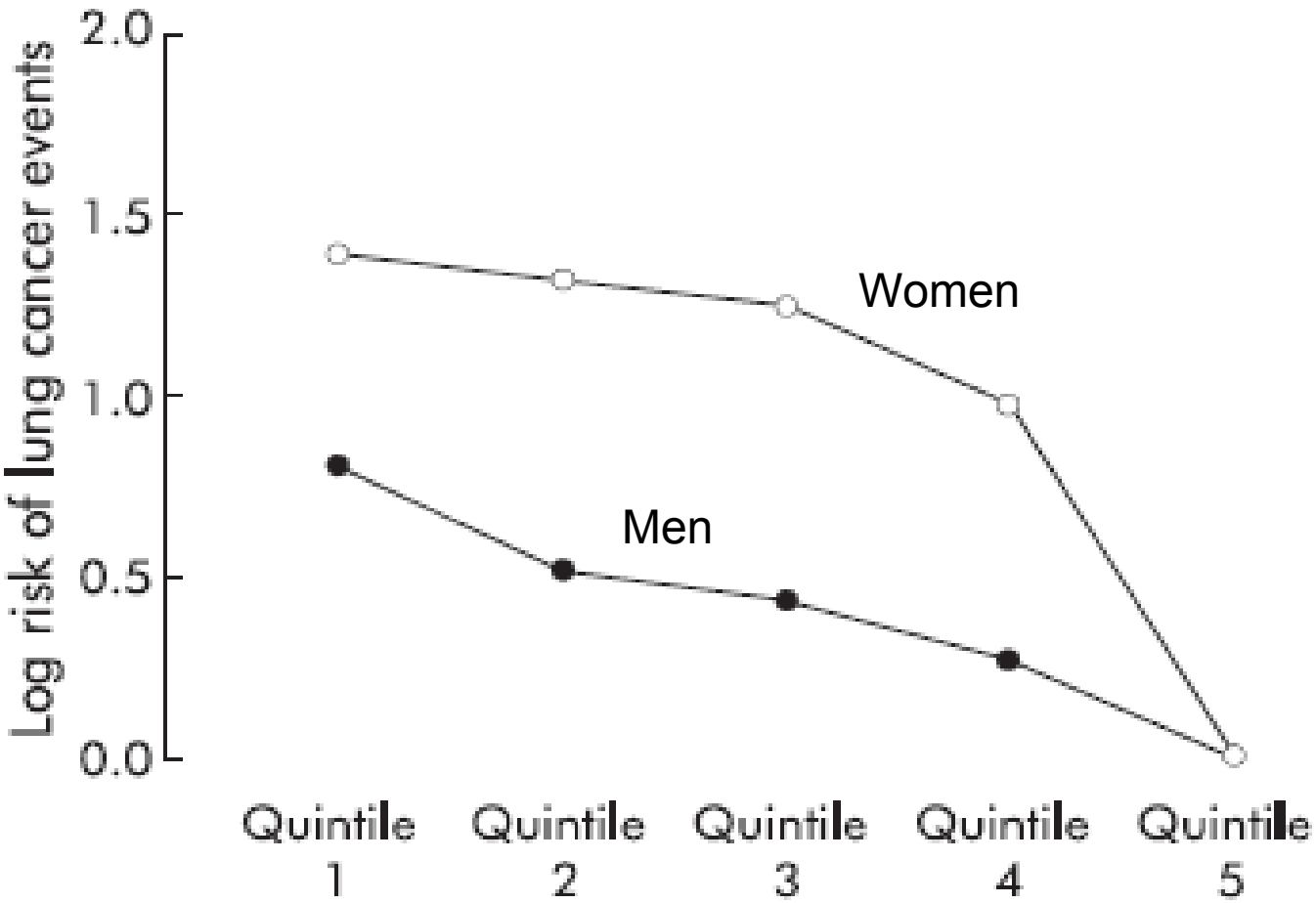
# PREVALENCIA DE EPOC EN PACIENTES CON CÁNCER DE PULMÓN

***Loganathan RS, et al. Prevalence of COPD in women compared to men around the time of diagnosis of primary lung cancer. Chest. 2006; 129:1305-12***



# LA EPOC COMO FACTOR DE RIESGO DE CÁNCER DE PULMÓN. Mujeres

***Wasswa-Kintu S et al. Relations between reduced forced expiratory volume in one second and the risk of lung cancer: a systematic review and meta-analysys. Thorax.2005;60:570-75.***



# LA EPOC COMO FACTOR DE RIESGO DE CÁNCER DE PULMÓN. Mujeres

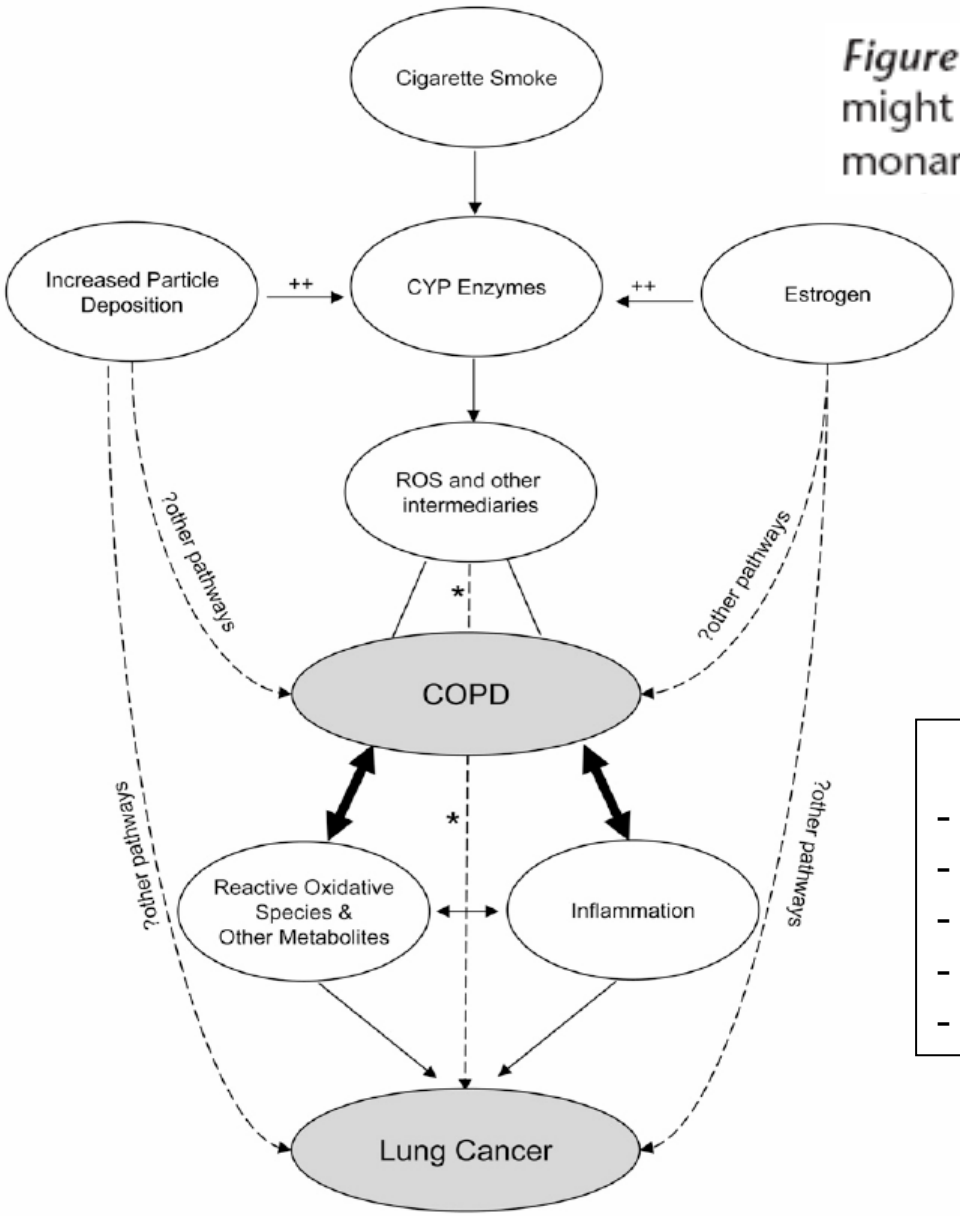



*Figure 2.* Hypothetical model of why female smokers might be more susceptible to chronic obstructive pulmonary disease (COPD) and lung cancer. Cigarette

- **Efecto + de estrógenos sobre CYP**
- **↑ depósito de partículas en pulmón**
- **↓ reparación de DNA**
- **↑ frecuencia de mutaciones p53**

***Ben Zaken-Cohen et al. Am J Resp Crit Care Med. 2007;176:113-120.***

**Mujeres**
- Menos enfisema
- Menos tabaco
- ↓ FEV1
- ↓ resp a no fumar
- ADENOCARCINOMA

**Hombres**
- Mas enfisema
- Mas tabaco
- ↓ ↓ ↓ FEV1
- ↑ resp a no fumar
- CA. ESCAMOSO

# LA EPOC, FACTOR DE RIESGO DE CÁNCER DE PULMÓN. No fumadores

***Turner MC et al. COPD is associated with lung cancer mortality in a prospective study of never smokers. Am J Resp Crit Care. 2007; 176: 285-90***

TABLE 2. RELATION OF LUNG CANCER MORTALITY TO CHRONIC OBSTRUCTIVE PULMONARY DISEASE AMONG NEVER SMOKERS IN THE CANCER PREVENTION STUDY II COHORT, UNITED STATES, 1982–2002

| Previous Lung Disease | No. of Lung Cancer Deaths | Person-Years | Death Rate* | Minimally Adjusted Hazard Ratio† (95% CI) | Fully Adjusted Hazard Ratio‡ (95% CI) |
|---|---|---|---|---|---|
| Chronic bronchitis | | | | | |
| Yes | 48 | 210,569 | 19.0 | 0.96 (0.72, 1.28) | 0.96 (0.72, 1.28) |
| No | 1,711 | 7,932,210 | 21.1 | 1.00 | 1.00 |
| Emphysema | | | | | |
| Yes | 20 | 35,418 | 42.0 | 1.71 (1.10, 2.66) | 1.66 (1.06, 2.59) |
| No | 1,739 | 8,107,361 | 21.0 | 1.00 | 1.00 |
| Chronic bronchitis and emphysema | | | | | |
| Yes | 8 | 10,585 | 52.6 | 2.50 (1.24, 5.02) | 2.44 (1.22, 4.90) |
| No | 1,751 | 7,907,377 | 21.1 | 1.00 | 1.00 |

# EPOC y CÁNCER DE PULMÓN. INFLAMACIÓN

***Gan WK et al. Association between COPD and systemic inflammation: a systematic review and a meta-analysis. Thorax. 2004;59:574-80***

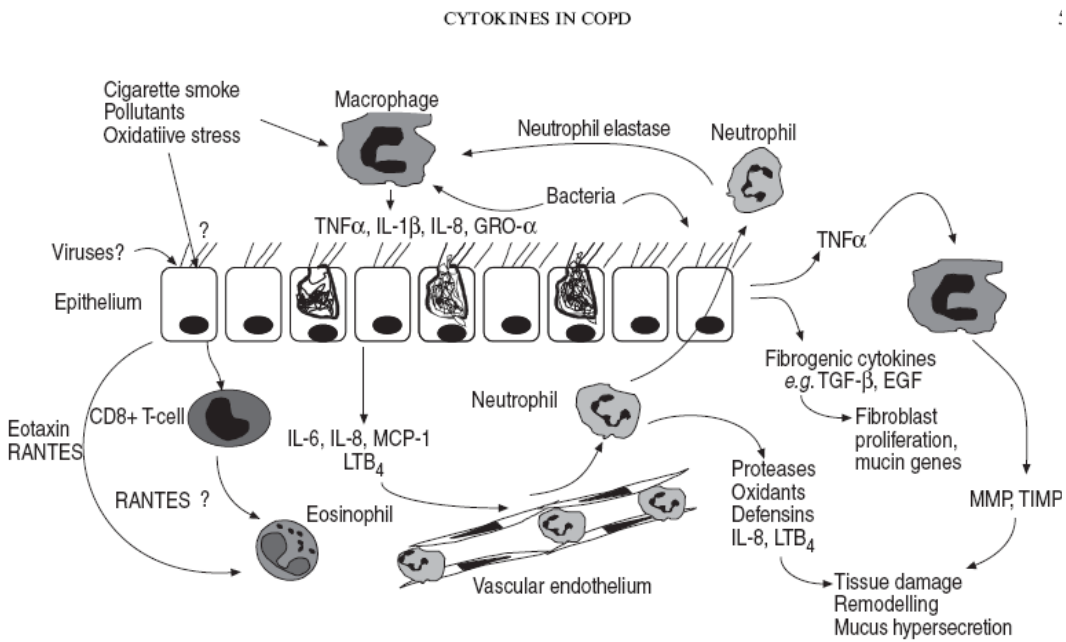
Search results N=1872
MEDLINE: n=911
EMBASE: n=666
CINAHL: n=279
Cochrane Library: n=16

→ Did not meet criteria n=1853

Studies retrieved: n=19

→ Did not have sufficient data: Different publications but the

Studies included in analyses: n=14
C-reactive protein: n=5
Fibrinogen: n=4
Tumour necrosis factor-a: n=4
Leucocyte: n=3
Interleukin-8: n=2
Interleukin-6: n=1



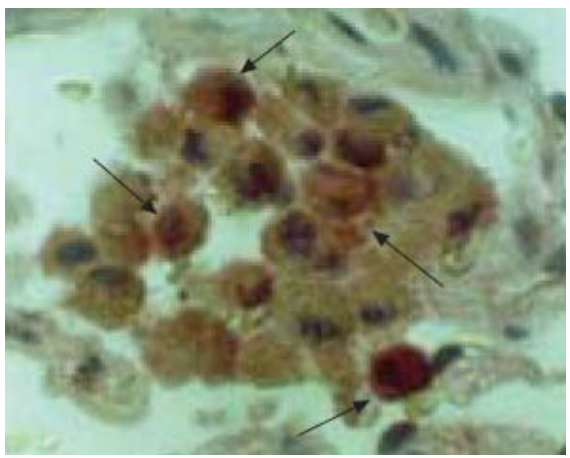

***Chung KF. Cytokines in COPD. Eur Resp J. 2001;18;Suppl 34:50S-90S***

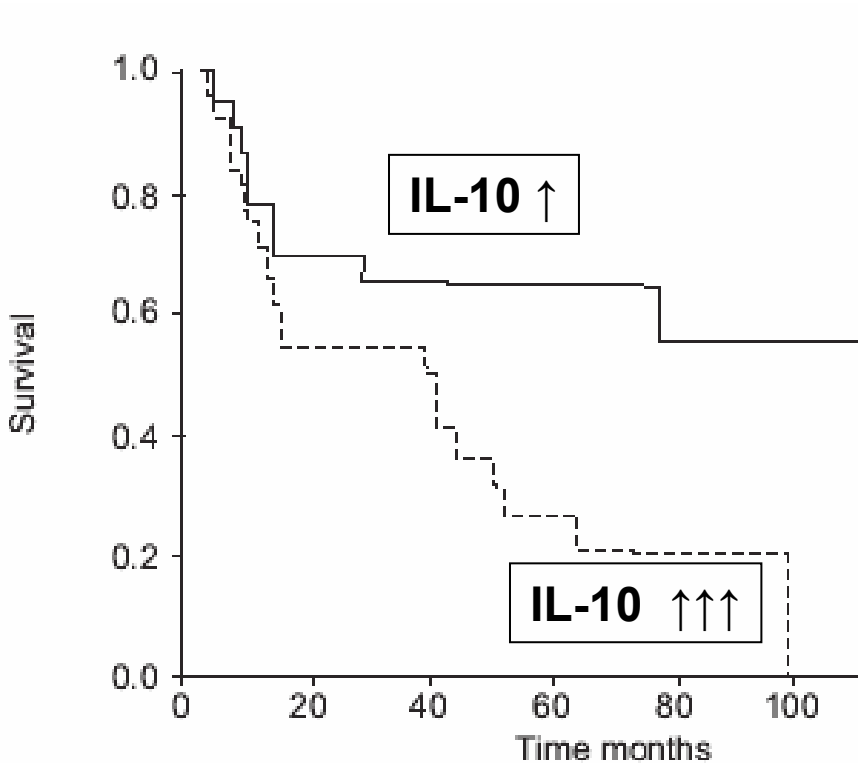
# EPOC y CÁNCER DE PULMÓN. INFLAMACIÓN

***Zeni E et al. Macrophage expressión of IL-10 is a prognostic factor in nonsmall cell lung cancer. Eur Resp J. 2001;30:627-32***

**TABLE 2** Interleukin (IL)-10 expression in tumour-associated macrophages (TAMs) and tumour cells of patients with early- and late-stage nonsmall cell lung cancer

| | Late stage | Early stage |
|---|---|---|
| Subjects n | 23 | 24 |
| IL-10-positive TAMs % | 50.9 (16.1–73.4)# | 9.6 (1.4–29.3) |
| TAMs cells·HPF$^{-1}$ | 10.9 (7.4–15.2) | 10.3 (5.8–12.2) |
| IL-10-positive tumour cell area % | 6.5 (1.7–21.8) | 3.8 (0.9–13.6) |
| Total tumour cell area $\times 10^3$ µm$^2$ | 56 (48–59) | 58 (48–61) |



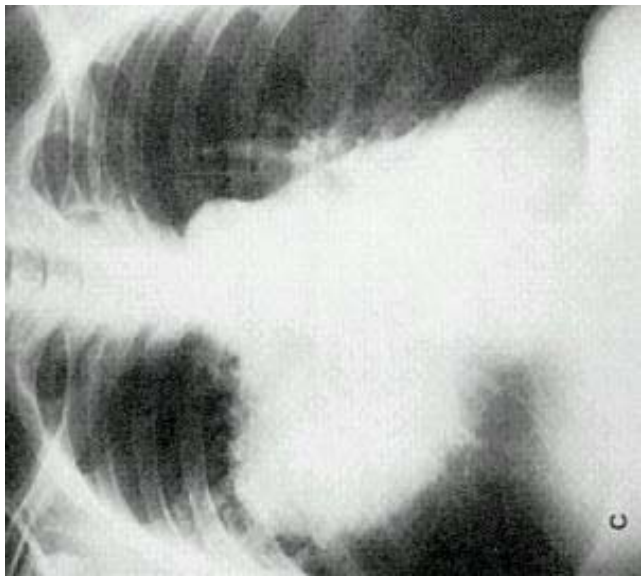


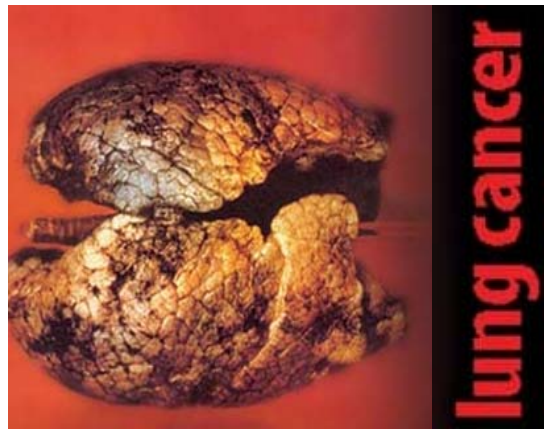
# EPOC y CÁNCER DE PULMÓN. INFLAMACIÓN CRÓNICA

***Lapperre TS et al. Relation between duration of smoking cessation and bronchial inflammation in COPD. Thorax. 2006;61:115-121***


**INFLAMACIÓN CRÓNICA-----------CÁNCER**

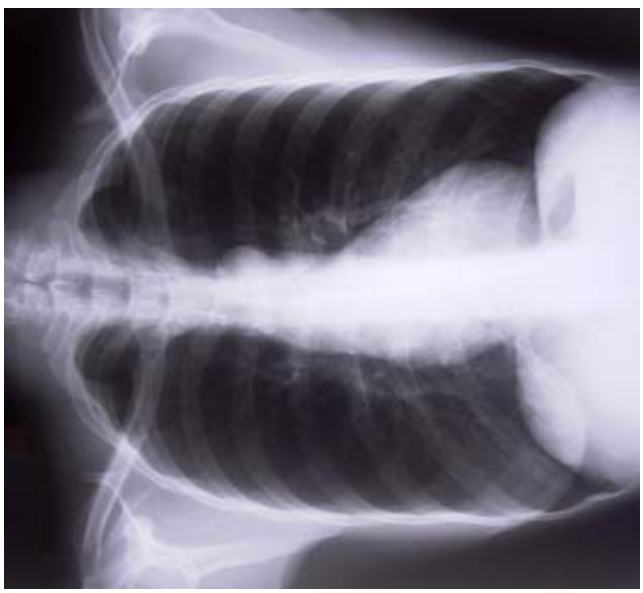
- Colitis ulcerosa----------Cáncer de colon
- Esófago de Barret----------Cáncer de esófago
- Hepatitis crónica virus C----------Cáncer de hígado
- **INFLAMACIÓN CRÓNICA EN EPOC--------CÁNCER DE PULMÓN**

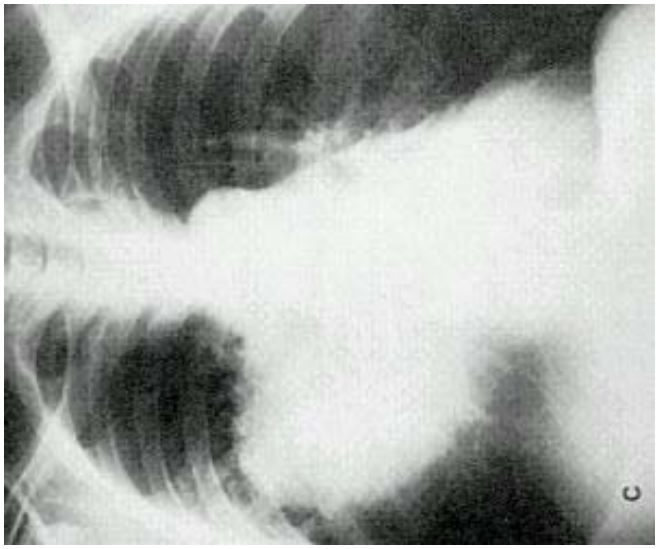





# NEOPLASIA

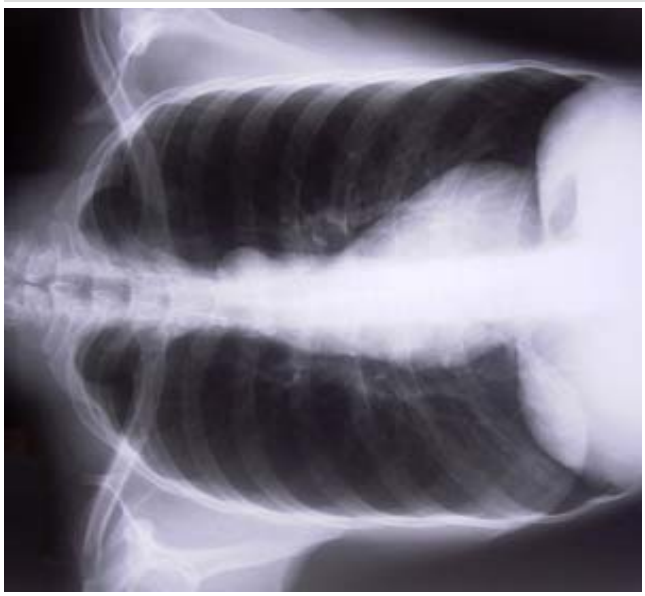
# INFLAMACIÓN





NEOPLASIA


INFLAMACIÓN



# EPOC y CÁNCER DE PULMÓN. GENÉTICA

***Young RP et al. Individual and cumulative effects of GWAS susceptibility loci in lung cancer: associations after sub-phenotyping for COPD. PLos One. 2011. 2: e16476***

| Disease | Chromosomal loci |
|---|---|
| COPD ($FEV_1$) | 1q23 |
| | 4q22 |
| | 4q24 |
| | 4q31 |
| | 5q33 |
| | 6p21 |
| | 6q24 |
| | 15q25 |
| Lung Cancer | 1q21 |
| | 4q31 |
| | 5p15 |
| | 6p21 |
| | 6q24 |
| | 15q25 |
| COPD and Lung Cancer overlap | |
| | 15q25 |
| | 4q31 |
| | 4q22 |

***Caramori G et al. Int J Biochemic Cell Biol, 2010***

Genes potentially involved in lung carcinogenesis and COPD pathogenesis[a].

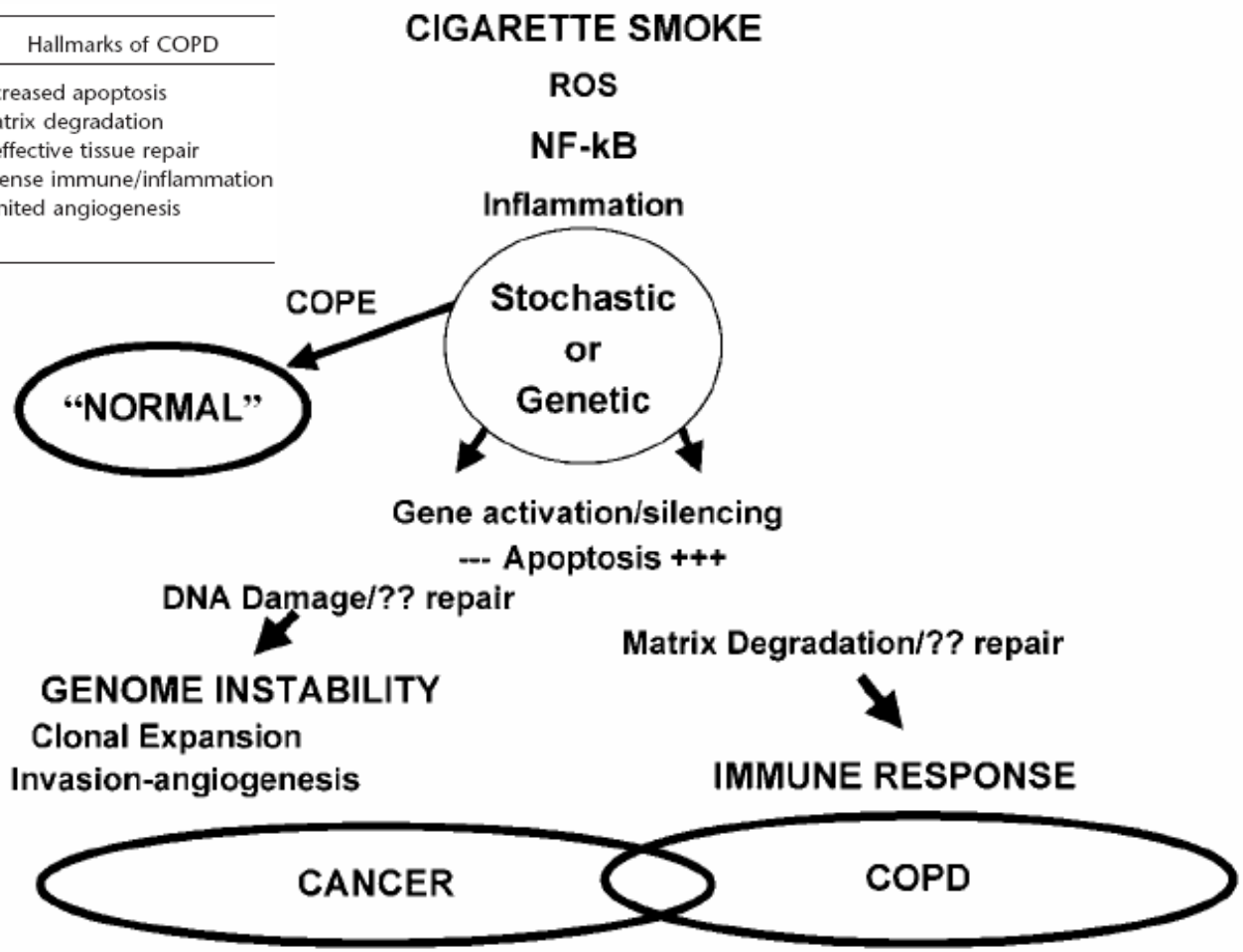
- CHRNA3
- CHRNA5
- CHRNB4
- TP53
- $p21^{WAP/CIP1}$
- RB1

[a] It is still unknown if there is an increased risk for the squamous cell carcinoma histological subtype.

# EPOC y CÁNCER DE PULMÓN. INFLAMACIÓN Y GENÉTICA

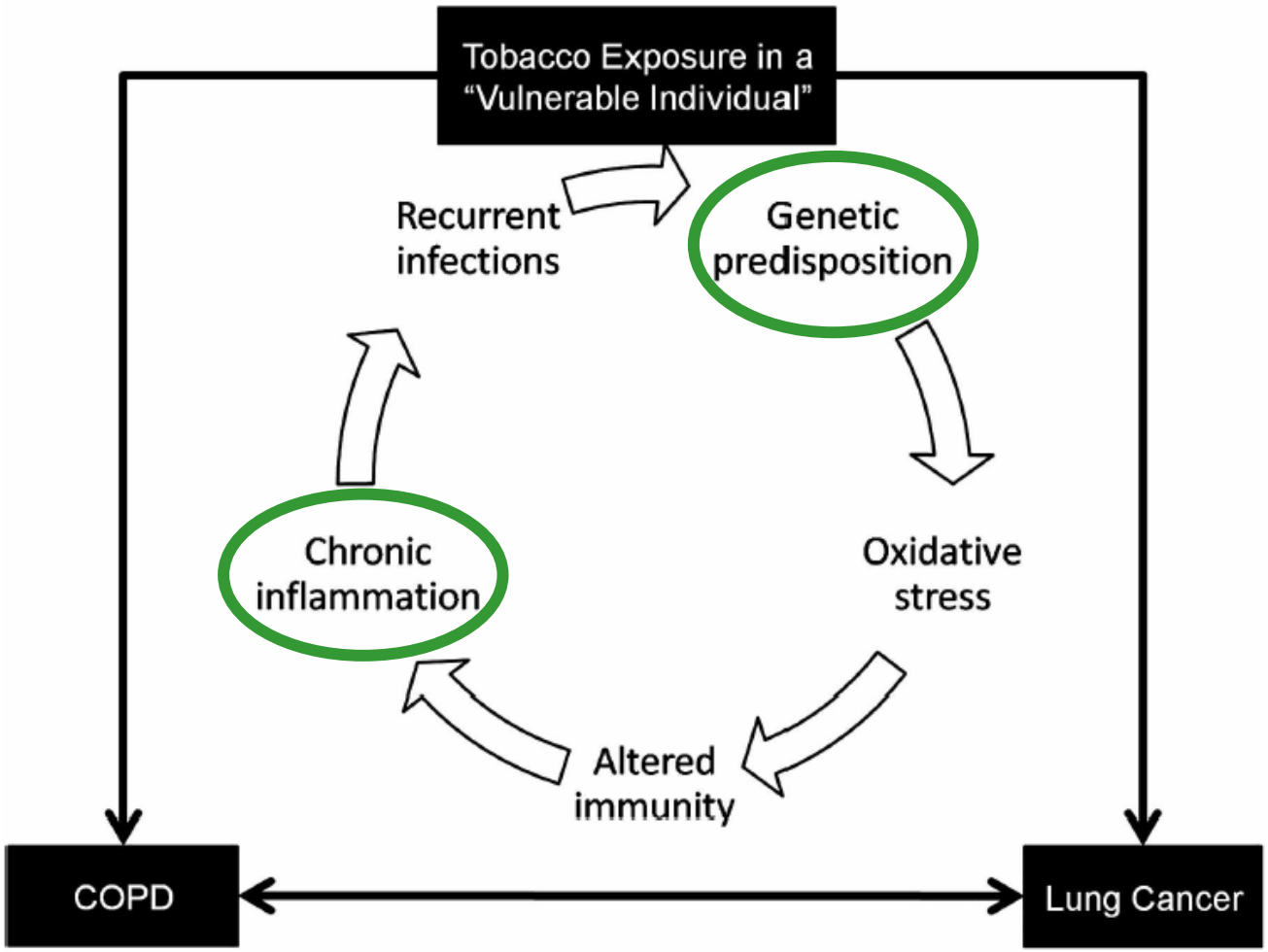
***Brody JS et al. COPD, inflammation, and lung cancer. Proc Am Thorac Soc. 2006;3:535-38.***

| Hallmarks of Cancer | Hallmarks of COPD |
|---|---|
| Evading apoptosis | Increased apoptosis |
| Self-sufficiency of growth | Matrix degradation |
| Insensitivity to antigrowth | Ineffective tissue repair |
| Tissue invasion | Intense immune/inflammation |
| Sustained angiogenesis | Limited angiogenesis |
| Limitless replication | |



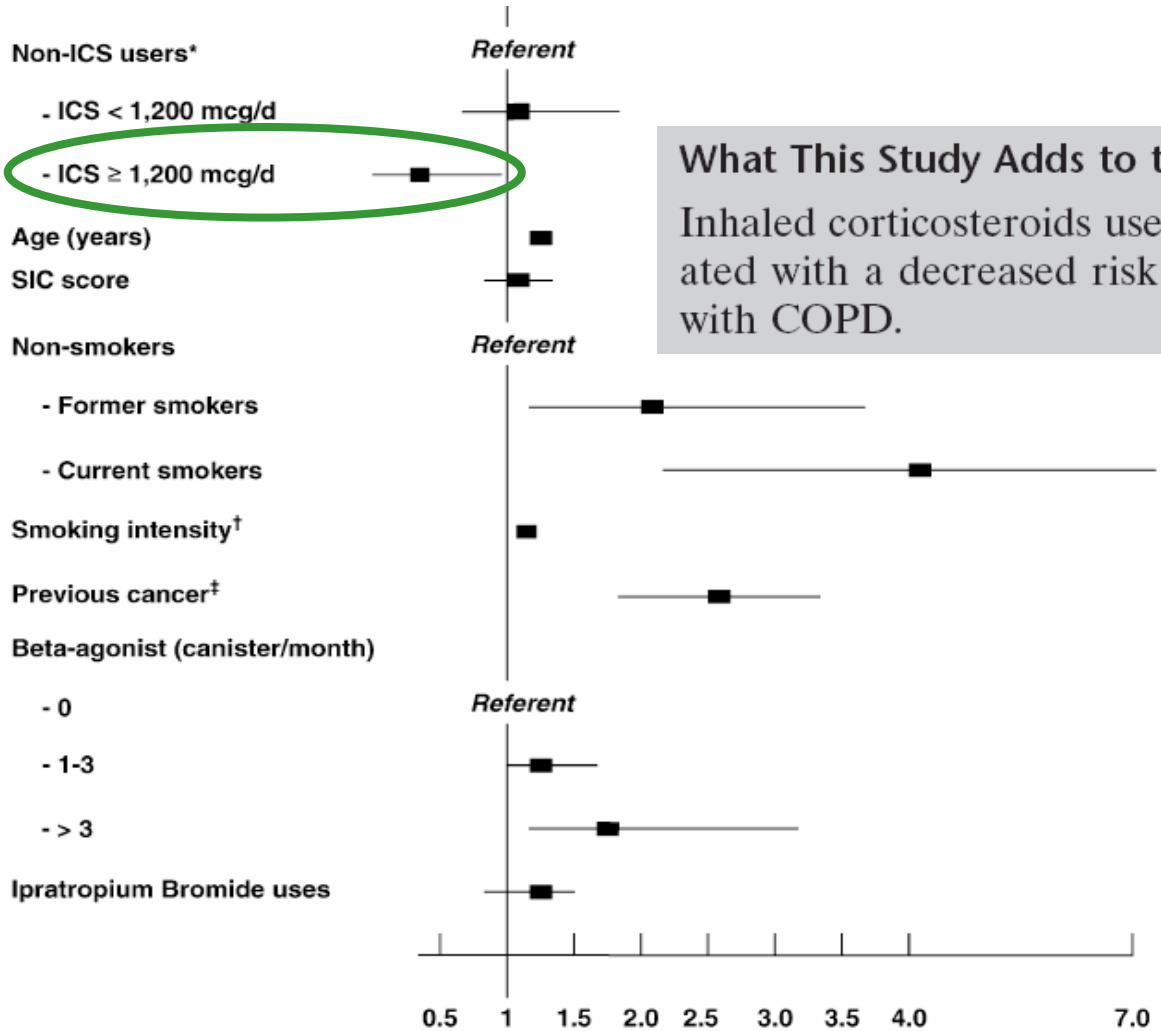
# EPOC y CÁNCER DE PULMÓN. INFLAMACIÓN Y GENÉTICA

***Ravic S et al. Lung cancer in COPD: enhancing surgical options and outcomes. Am J Respir Crit Care Med. 2010 Dec 22. Epub ahead of print***



# EPOC y CÁNCER DE PULMÓN. FÁRMACOS

***Parimon T et al. Inhaled corticosteroids and risk of lung cancer among patients with COPD. AmJ Resp Crit Care Med. 2007;175:712-19***




## What This Study Adds to the Field

Inhaled corticosteroids used in clinical practice are associated with a decreased risk of lung cancer among patients with COPD.

# EPOC y CÁNCER DE PULMÓN. FÁRMACOS

A Major Cause of Death in COPD and Risk Factors for Lung Cancer—a Dilemma or a Mistake?

Lung Cancer Chemoprevention with Inhaled Corticosteroids?

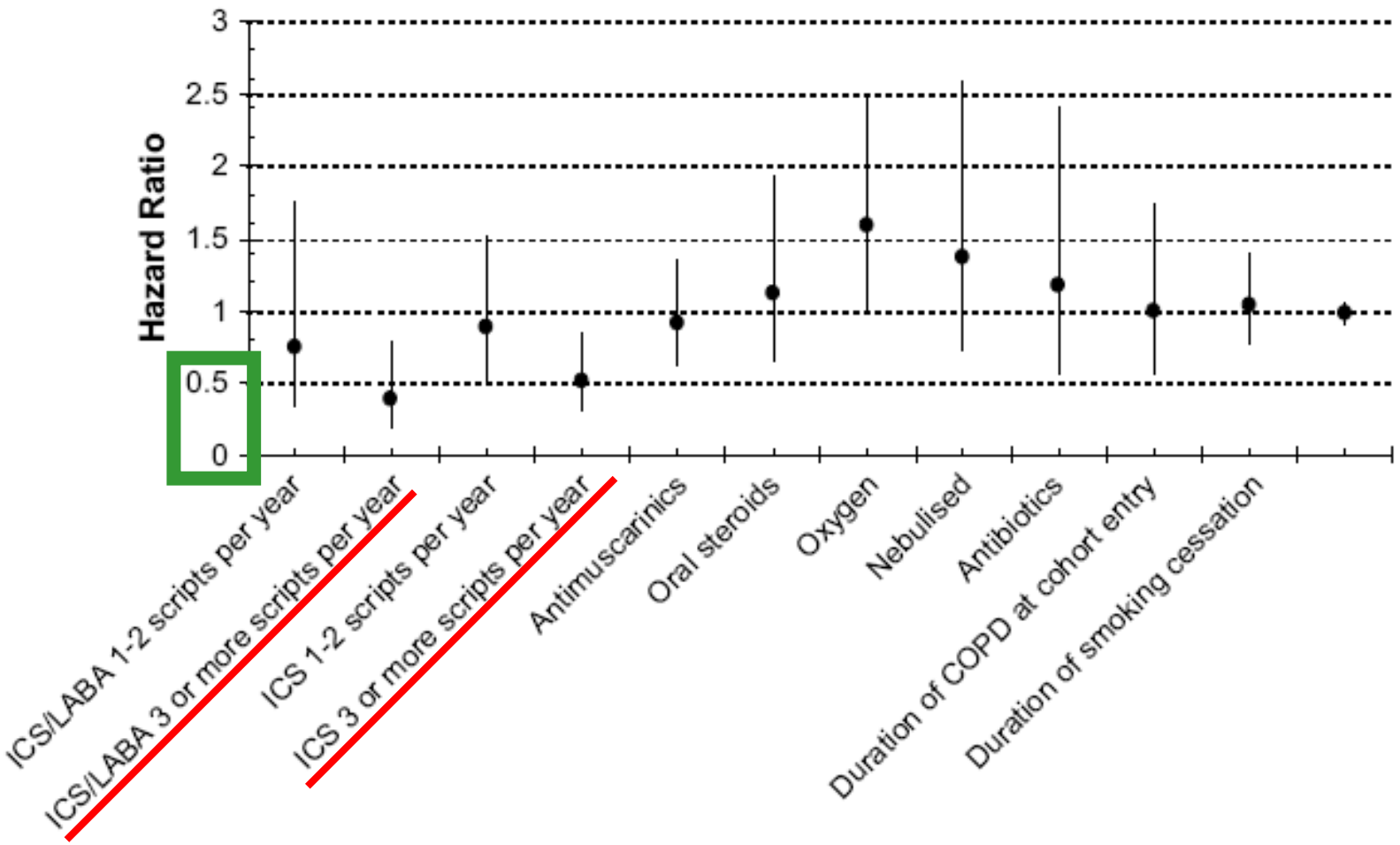
## Inhaled Corticosteroids Might Not Protect against Lung Cancer

TABLE 1. NO SIGNIFICANT ASSOCIATION BETWEEN INHALED CORTICOSTEROIDS AND LUNG CANCER*

| Triamcinolone Equivalents | Person-Years at Risk | Number of Lung Cancer Cases | Unadjusted Rate (per person-year) |
|---|---|---|---|
| Nonusers | 31,799 | 402 | 0.0126 |
| Users | | | |
| <1,200 μg/day | 928 | 16 | 0.0172 |
| ⩾1,200 μg/day | 709 | 5 | 0.00705 |
| All combined | 1,637 | 21 | 0.0128 |

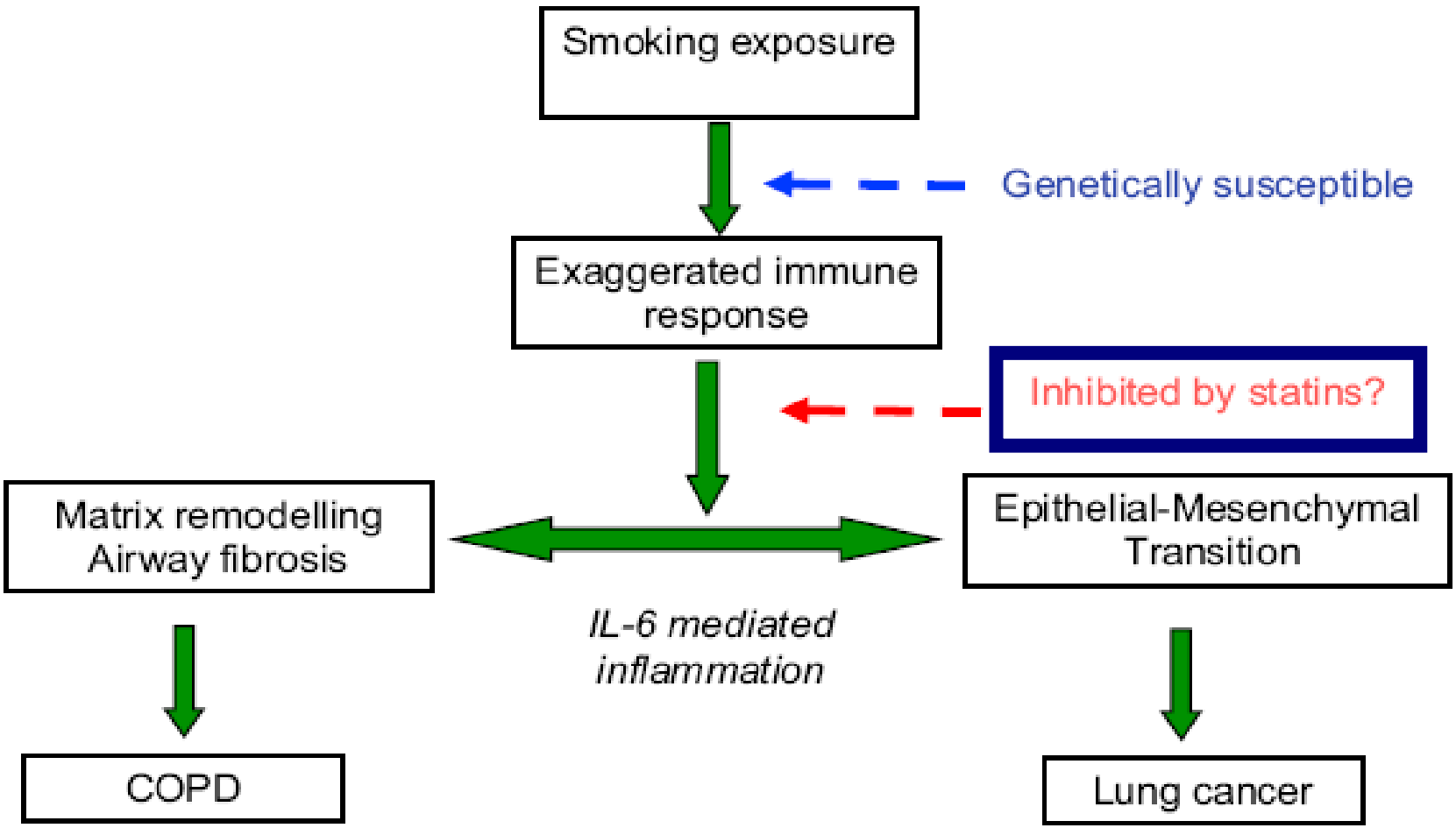
# EPOC y CÁNCER DE PULMÓN. FÁRMACOS

***Kiri VA et al. Inhaled corticosteroids and risk of lung cancer among COPD patients who quit smoking. Respir Med. 2009; 103:85-90***



# EPOC y CÁNCER DE PULMÓN. FÁRMACOS

***Young RP et al. Link between COPD and lung cancer. Respir Med. 2010; 104:758-9***



# EPOC y CÁNCER DE PULMÓN. FÁRMACOS

***Martorana PA et al. Roflumilast fully prevents emphysema in mice chronically exposed to cigarette smoling. Am J Resp Crit Care Med. 2005;172:848-53***

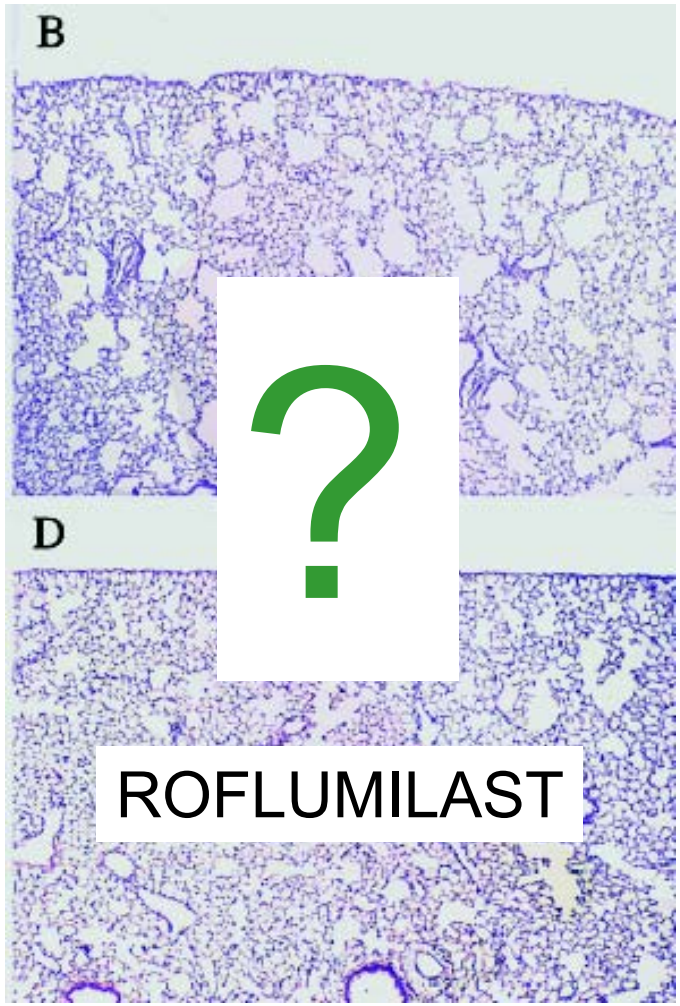
***Caramori G et al. Int J Biochemic Cell Biol, 2010***

New potential compounds for the treatment of both lung cancer and COPD.

Wide spectrum anti-inflammatory compounds:
- Inhaled glucocorticoids
- COX-2 selective inhibitors
- Novel anti-inflammatory compounds (curcumin, resveratrol, statins).

Selective antagonists of inflammatory mediators:
- Muscarinic M3 receptor antagonists
- CXCR4/CXCL12 axis blockers

Transcription factor modulators:
- NF-κB blockers
- PPARγ agonists



# PUNTOS CLAVE

- El cáncer de pulmón como causa de † en la EPOC
- EPOC y cáncer de pulmón. ¿Relacionadas?

  - Prevalencia de EPOC en pacientes con cáncer de pulmón
  - La EPOC como factor de riesgo de cáncer de pulmón

  *FEV1 y grado de enfisema

  *Mujeres y no fumadores
- Nexo entre la EPOC y cáncer de pulmón.

  - Inflamación crónica y genética
- Implicación en el diagnóstico. Detección precoz
- Implicación en el tratamiento. Fármacos, cirugía

# GRACIAS

# EPOC y CÁNCER DE PULMÓN. DETECCIÓN PRECOZ

*Diez Herranz A. EPOC y cáncer de pulmón: implicaciones prácticas. Arch. Bronconeumol. 2001;37:240-7*

## Estratificación del riesgo de cáncer de pulmón (2)

| | Fumador | | | |
|---|---|---|---|---|
| | No | | Sí | |
| | Espirometría | | Espirometría | |
| | Normal | Patológica | Normal | Patológica |
| No síntomas | No riesgo (no procede espirometría) | | Estándar | Alto |
| Sí síntomas | Bajo | Ligero | Moderado | Máximo |

*Fuente: Petty TL. Screening strategies for early detection of lung cancer: the time is now. JAMA. 200;284:1977-80.*

# EPOC y CÁNCER DE PULMÓN. DETECCIÓN PRECOZ

***Bechtel JJ et al. Lung cancer detection in patients with airflow identified in a primary care. Chest. 2005;127:1140-45.***

**CRITERIOS DE ALTO RIESGO DE CÁNCER DE PULMÓN**

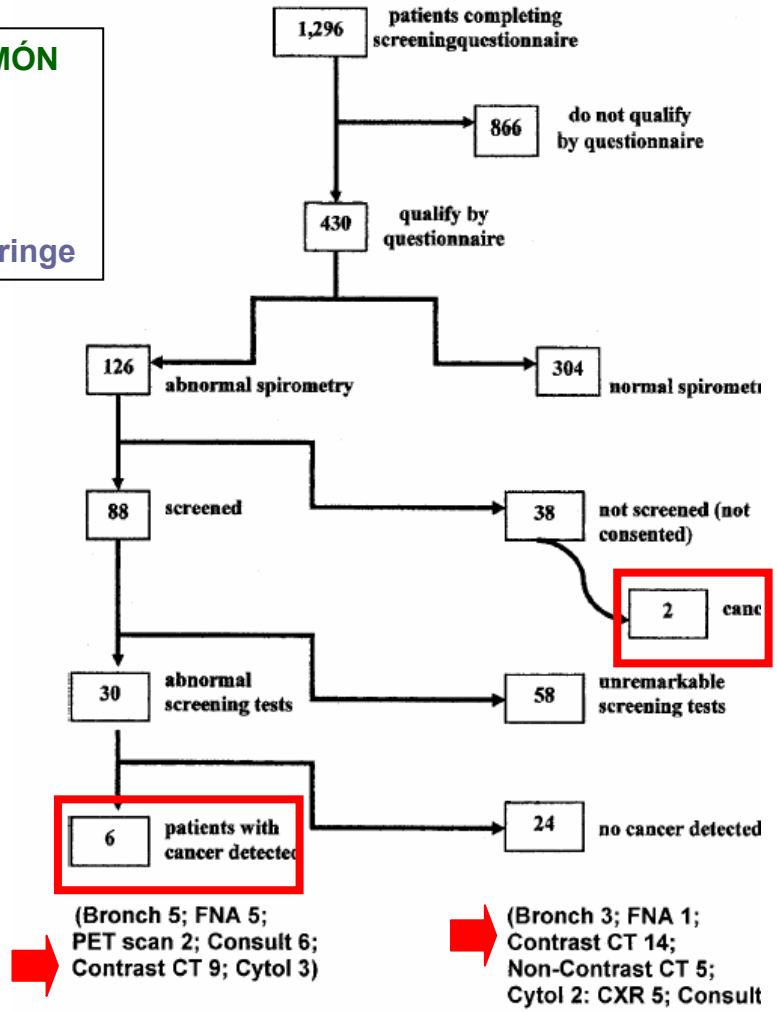
Edad de más de 50 años y uno de los siguientes:
- Fumador/exfumador de > 30 años/paquete
- Exposición asbesto/mina de carbón
- Historia familiar de cáncer de pulmón, esófago o laringe

↓

**ESPIROMETRÍA**

↓

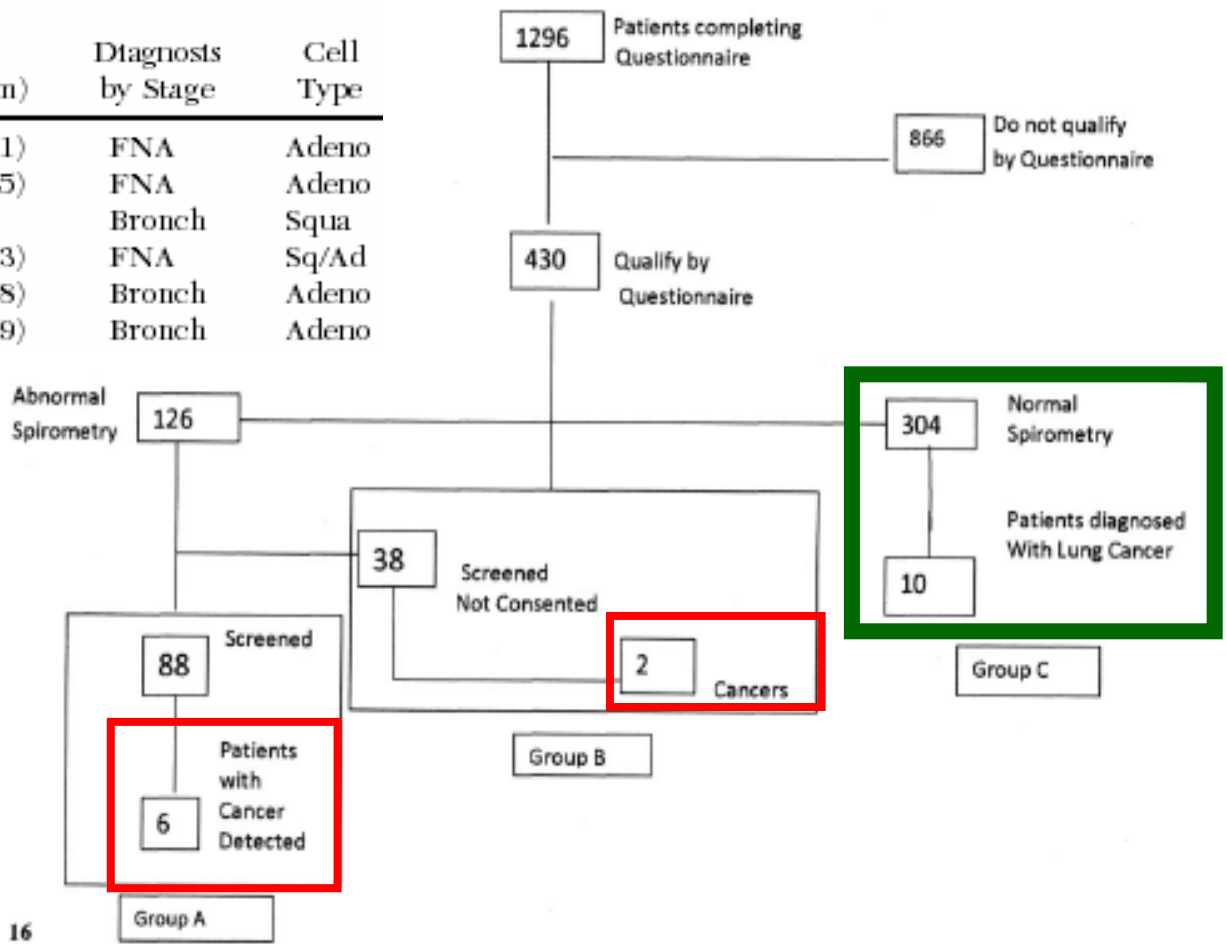
- **Rx de tórax**
- **TC torácico**
- **Citologías de esputo**



# EPOC y CÁNCER DE PULMÓN. DETECCIÓN PRECOZ

***Bechtel JJ. Five-year of lung cancer detection in patients with and without airflow obstruction in a primary care outpatient practice. Journal of Thoracic Oncology. 2009;4:1347-51***

| Chest Radiograph Finding | Sputum Cytology Finding | CT Scan Finding (cm) | Diagnosis by Stage | Cell Type |
|---|---|---|---|---|
| Negative | Negative | Positive (2.1) | FNA | Adeno |
| Positive | NA | Positive (2.5) | FNA | Adeno |
| Negative | Positive | Negative | Bronch | Squa |
| Positive | Negative | Positive (2.3) | FNA | Sq/Ad |
| Negative | Positive | Positive (1.8) | Bronch | Adeno |
| Negative | Negative | Positive (0.9) | Bronch | Adeno |



# EPOC y CÁNCER DE PULMÓN. CIRUGÍA

**Table 1.** Traditional criteria for tolerance of anatomic surgical resection of early-stage non-small lung cancer

| | |
|---|---|
| Preoperative $FEV_1$ | > 1.5 Liters *or*<br>> 80% of predicted |
| Preoperative $D_LCO$ | > 80% of predicted |
| $VO_2$ maximum | > 15 ml/kg/min |
| Predicted postoperative $FEV_1$ | > 40% of predicted |
| Predicted postoperative $D_LCO$ | > 40% of predicted |

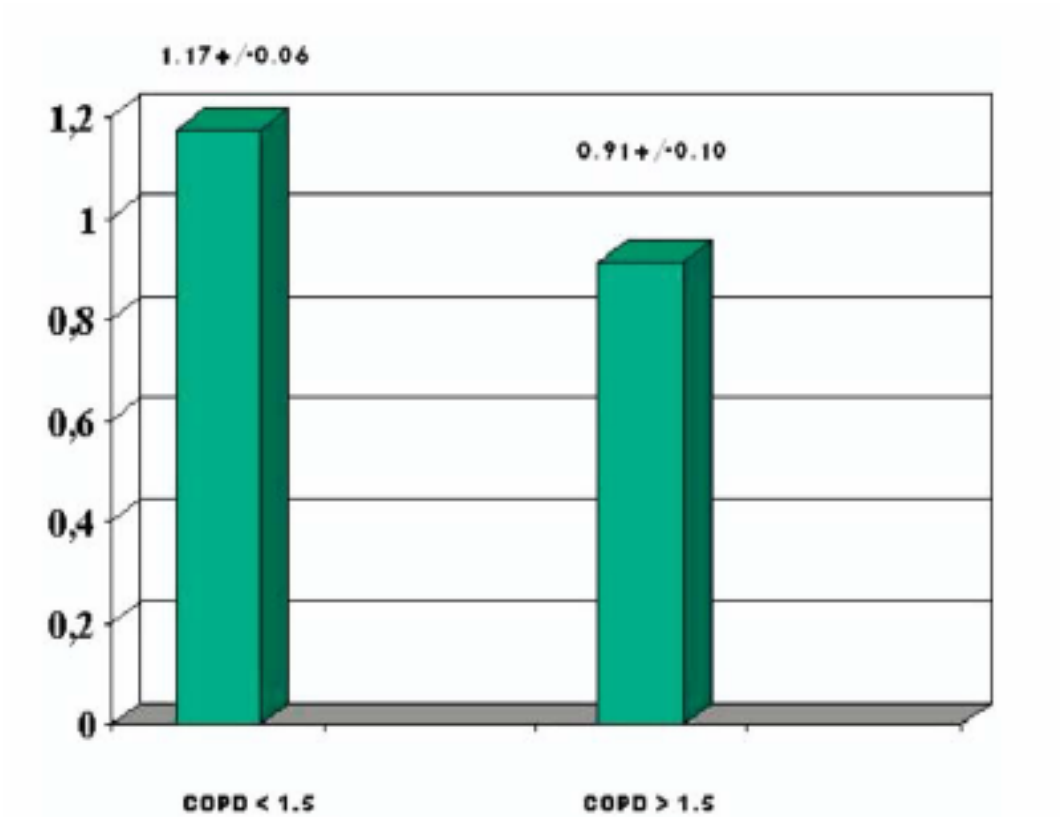
**Distribución de los tipos de complicaciones pulmonares encontradas en el postoperatorio de cirugía electiva en 59 pacientes con EPOC**

| Complicaciones | Frecuencia | Porcentaje |
|---|---|---|
| Neumonía | 13 | 37,2 |
| Broncospasmo | 8 | 22,9 |
| Atelectasia | 4 | 11,4 |
| Insuficiencia respiratoria | 4 | 11,4 |
| Ventilación mecánica | 4 | 11,4 |
| Infección traqueobronquial | 2 | 5,7 |
| Total | 35 | 100,00 |

# EPOC y CÁNCER DE PULMÓN. CIRUGÍA

***Baldi et al. Does lobectomy for lung cancer in patients with COPD affect lung function?. A multicenter national study. J. Thoracic Cardiovasc Surgery. 2005;130:1616-20***

| Variable | COPD index <1.5 | COPD index >1.5 |
|---|---|---|
| $FEV_1$-pre (%) | 65 ± 10 | 99 ± 17 |
| $FEV_1$-post (%) | 66 ± 15 | 77 ± 16 |
| | *P* = .6 | *P* = .000001 |
| $FEV_1$/FVC-pre | 58 ± 10 | 72 ± 8 |
| $FEV_1$/FVC-post | 65 ± 13 | 65.9 ± 10 |
| | *P* = .0001 | *P* = .001 |
| RV-pre (%) | 116 ± 23 | 109 ± 37 |
| RV-post (%) | 93 ± 20 | 84 ± 27 |
| | *P* = .000001 | *P* = .0002 |
| $Pa0_2$-pre (mm Hg) | 79.9 ± 9 | 85 ± 8 |
| $Pa0_2$-post (mm Hg) | 79.5 ± 9 | 83 ± 9 |
| | *P* = .7 | *P* = .2 |



# EPOC y CÁNCER DE PULMÓN. CIRUGÍA

***Choong CK et al. Lung cancer resection combined with lung volume reduction in patients with severe emphysema. J. Thoracic Cardiovasc Surgery. 2004;127:1323-31***

| Patient | Location of tumor | Procedure |
|---|---|---|
| 1 | Right upper lobe | Lobectomy and contralateral LVRS |
| 2 | Right lower lobe | Lobectomy and contralateral LVRS |
| 3 | Right middle lobe | Lobectomy and contralateral LVRS |
| 4 | Left upper lobe | Wedge and contralateral LVRS |
| 5 | Right middle lobe | Lobectomy and ipsilateral LVRS |
| 6 | Right lower lobe | Wedge and ipsilateral LVRS |
| 7 | Left upper lobe | Lobectomy only |
| 8 | Left upper lobe | Lobectomy and contralateral LVRS |
| 9 | Right lower lobe | Wedge and contralateral LVRS |
| 10 | Left lower lobe | Lobectomy only |
| 11 | Left upper lobe | Lobectomy only |
| 12 | Right lower lobe | Lobectomy only |
| 13 | Right upper lobe | Lobectomy and contralateral LVRS |
| 14 | Right upper lobe | Lobectomy and ipsilateral LVRS |
| 15 | Right upper lobe | Lobectomy only |
| 16 | Left upper lobe | Lobectomy only |
| 17 | Left upper lobe | Lobectomy only |
| 18 | Left upper lobe | Lobectomy only |
| 19 | Right upper lobe | Lobectomy and contralateral LVRS |
| 20 | Right upper lobe | Lobectomy only |
| 21 | Left upper lobe | Lobectomy and contralateral LVRS |

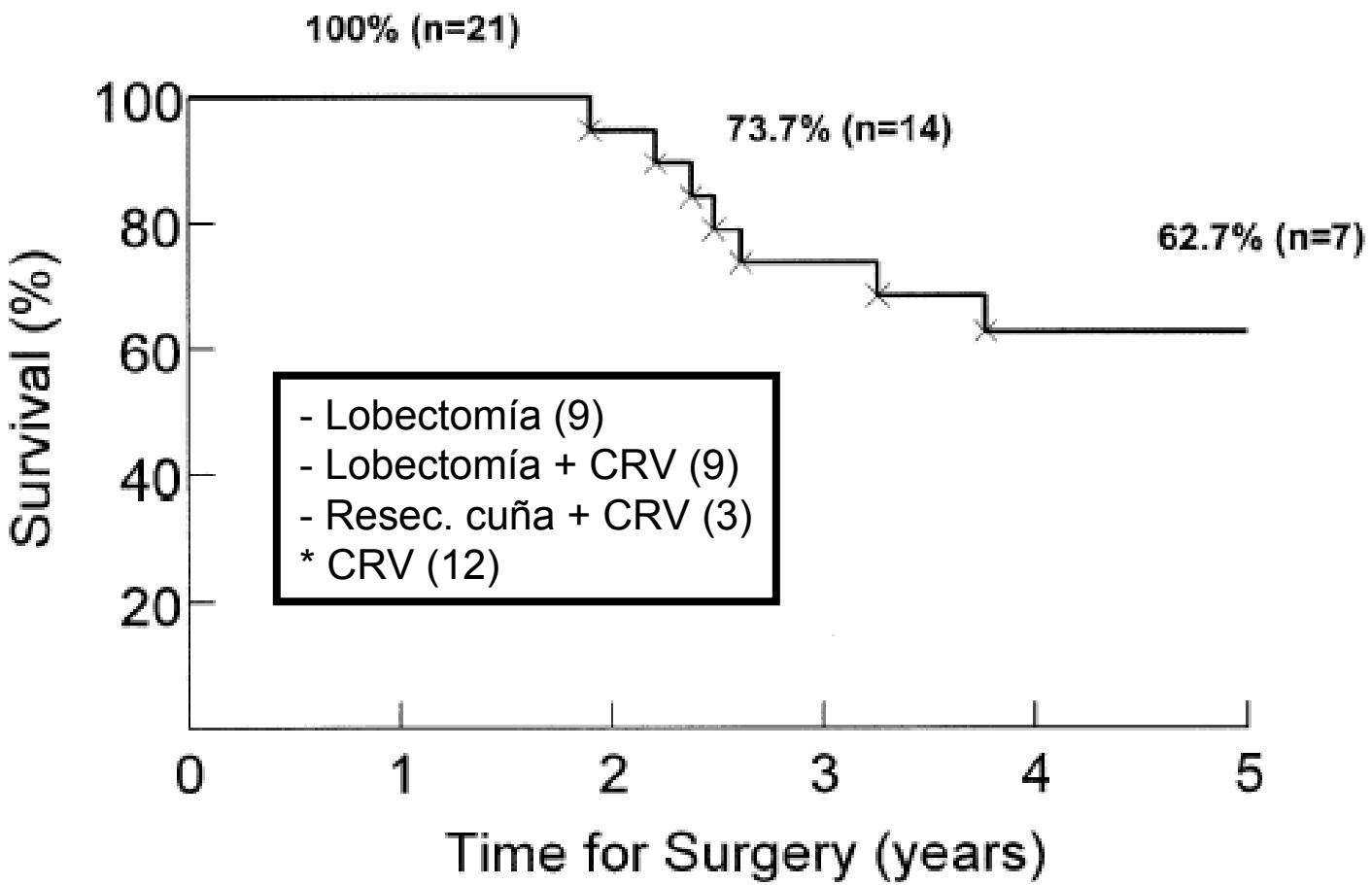
- Lobectomía (9)
- Lobectomía + CRV (9)
- Resec. cuña + CRV (3)

* CRV (12)

| | Pre–pulmonary rehabilitation |
|---|---|
| n | 16 |
| $FEV_1$, L (% predicted) | 0.7 ± 0.2 (27%)* |
| RV, L (% predicted) | 5.3 ± 0.4 (260%)* |
| DLCO, mL/min/mm Hg (% predicted) | 8.4 ± 2.8 (35%)* |
| Six-minute walk (feet) | 854 ± 332† |
| MRC | 3.4 ± 0.7* |

# EPOC y CÁNCER DE PULMÓN. CIRUGÍA

*Choong CK et al. Lung cancer resection combined with lung volume reduction in patients with severe emphysema. J. Thoracic Cardiovasc Surgery. 2004;127:1323-31*



# EPOC y CÁNCER DE PULMÓN. FÁRMACOS

***Bölükbas et al. Short-term effects of inhalative tiotropium/formoterol/budesonide versus tiotropium/formoterol in patientes with newly diagnosed COPD requiring surgery for lung cancer: a prospective randomized trial. Eur J Cardiot Surg. 2010, Oct 20. Epub head of print***

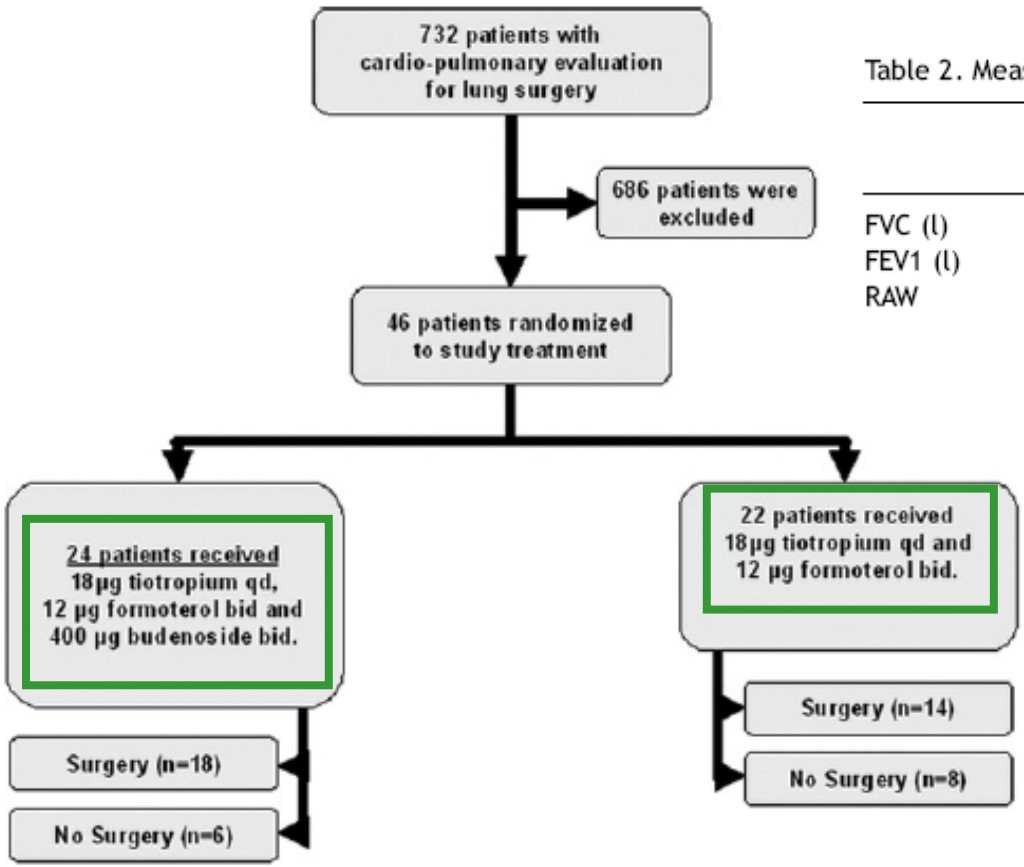



Table 2. Measurements after 1-week treatment.

| | Group 1 ($n$ = 24) | Group 2 ($n$ = 22) | $p$-value |
|---|---|---|---|
| FVC (l) | 2.88 ± 0.70 | 2.69 ± 0.43 | 0.3 |
| FEV1 (l) | 2.00 ± 0.49 | 1.71 ± 0.40 | 0.031 |
| RAW | 0.36 ± 0.11 | 0.39 ± 0.11 | 0.4 |

Table 4. Postoperative pulmonary complications.

| | Group 1 ($n$ = 18) | Group 2 ($n$ = 14) | $p$-value |
|---|---|---|---|
| Pneumonia | 1 | 4 | 0.1 |
| Sputum retention | 1 | 2 | 0.6 |
| Acute respiratory failure | 0 | 0 | – |
| Chronic respiratory failure | 0 | 0 | – |
| Total number of pulmonary complications | 2 (11.1%) | 6 (42.9%) | *0.044* |