

April 2001 Press Releases

## Selective Decontamination of the Digestive Tract May Reduce Deaths in Severe Burn Cases

"Pneumonia in Patients With Severe Burns: A Classification According to the Concept of the Carrier State"

Miguel A. de la Cal, MD; Enrique Cerda, MD, PhD; Paloma Garcia-Hierro, MD; et al  
CHEST 2001; 119:1160-1165

[Abstract](#) [Full text](#)

Selective decontamination of the digestive tract may help reduce deaths in severely burned patients who are susceptible to pneumonia, according to a new study.

Infections in general and pneumonia in particular are major causes of morbidity and mortality in burn patients. Previous studies have shown infection rates of up to 50%, with a pneumonia rate of 65% in burn patients requiring mechanical ventilation. The new study, reported in the April issue of CHEST, the peer-reviewed journal of the American College of Chest Physicians, was carried out at the burn unit of the University Hospital of Getafe, Madrid in Spain. There, investigators examined the different types of pneumonia and reviewed the prophylactic interventions used for each.

According to the researchers, pneumonia can be classified into three different types, each of which calls for specific prevention measures. The types are primary endogenous, secondary endogenous, and exogenous. A pneumonia is defined as an endogenous infection of the lower airways if the causative bacteria are present in the patient's pharynx or gastrointestinal (GI) tract. Primary endogenous pneumonia takes place when the microorganisms are present upon admission to the intensive care unit (ICU). A secondary endogenous pneumonia is defined as pneumonia caused by microorganisms not carried by the patient upon admission to the ICU but acquired later on the unit. An exogenous pneumonia is caused by bacteria associated with the ICU ecology that are not carried by the patient in the pharynx or GI tract.

Only systemic antibiotics prevent primary endogenous infections, whereas topical antibiotics have been shown to eradicate or prevent the development of secondary endogenous infections. A high level of hygiene is required to control exogenous infections. Regular surveillance samples of throat and rectum are essential in monitoring the efficacy of the topical antibiotics and in distinguishing endogenous from exogenous infections. These four components—a short cycle of systemic antibiotics, oral nonabsorbable antibiotics, hygiene, and surveillance cultures—together form the protocol of a strategy called selective decontamination of the digestive tract (SDD).

Fifty-six patients who were admitted during a two year period to the Madrid hospital with a burn area over 20% or more of their bodies participated in the study. Inhalation injury was identified in 26 patients (46%). Forty-one patients (73%) required mechanical ventilation for a median of 14 days. The observed mortality was 14 patients (25%). Expected mortality was 34%. Patients died at a median of 17 days.

Twenty-seven patients (48%) experienced 37 episodes of pneumonia: 21 episodes (57%) were primary endogenous, 14 (38%) secondary endogenous, and 2 (5%) exogenous. The cumulative incidence of ventilator-associated pneumonia was 69% with a rate of 48 episodes per 1,000 ventilation days.

Reporting on behalf of his colleagues, Miguel A. de la Cal, M.D., said there were five main findings from the study: "(1) practically all pneumonias (95%) were endogenous, both primary and secondary; (2) more than half of the burn patients requiring ventilation (57%) developed a primary endogenous pneumonia at a median of 3 days; (3) the pneumonia rate was two times higher in the group with inhalation injury compared with the group without inhalation injury; (4) all but two primary endogenous pneumonias were caused by community-acquired bacteria, including *S aureus*, *S pneumoniae*, and *H influenzae*; (5) secondary endogenous pneumonias occurring at a median of 16 days were usually preceded by a primary endogenous pneumonia."

Dr. de la Cal noted that exogenous infections were remarkably uncommon in the study. He said: "The observation that 95% of microorganisms....were first acquired and carried in the throat and gut before infecting lower airways is of utmost importance. The mainly endogenous pathogenesis of pneumonia in patients with severe burns suggests that prophylactic SDD aiming at the eradication, if initially present, and at the prevention of oropharyngeal and GI carriage of potential pathogens may be effective in controlling pneumonias in those patients."

CHEST is published by the American College of Chest Physicians, which represents more than 15,000 members who provide clinical, respiratory, and cardiothoracic patient care in the U.S. and throughout the world.

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April 2001 Press Releases

Higher Death Rates in LVRS Patients Who Missed Appointments

"Underestimation of Mortality Following Lung Volume Reduction Surgery Resulting From Incomplete Follow-up"

Charles W. Butler, BA; Margaret Snyder, RN, MSN; Douglas K. Wood, MD, FCCP; et al  
CHEST 2001; 119:1056-1060  
Abstract Full text

The death rate soared to 27% for lung volume reduction surgery (LVRS) patients who canceled two or more follow-up appointments in a study at the University of Washington, as compared to 3% for those who attended their sessions, according to research published in the April CHEST.

Writing in the peer-reviewed journal of the American College of Chest Physicians, Joshua O. Benditt, MD, FCCP, of the Respiratory Care Service, University of Washington Medical Center, Seattle, along with five associates, looked at 85 patients who agreed to participate in the study. The patients were initially interviewed for a quality of life research project four weeks before LVRS, and were to be reassessed at 3 months, 6 months, 12 months, 18 months, and 24 months after their operation.

Of the 85 who began the study, 51 missed more than two consecutive follow-up appointments within 18 months, despite receiving both written and telephone reminders. Researchers found that fourteen patients among the non-attendees had died after refusing followup. One death occurred among the 34 attendee participants, 36 months after the person's operation. band. Consequently, such patients have difficulty moving air in and out of their lungs. Patients with severe emphysema are at a high risk of dying from the disease. LVRS removes the diseased portions of the lungs and leads to improvement in the functioning of the remaining lung tissue.

Specifically, the procedure is designed to increase expiratory airflow from the lungs, to improve exercise capacity, to upgrade respiratory muscle strength, to aid elastic recoil, to improve partial pressure (tension) of carbon dioxide in the arteries, to improve the ventilatory muscle recruitment pattern, and to reduce serious breathlessness (dyspnea).

According to Dr. Benditt, 32 of the 51 nonattendees (63%) were contacted by telephone. Further investigation of the 19 who could not be reached revealed that 14 patients (27% of the 51) had died sometime after they had refused follow-up. On average, death occurred approximately 18 months after the person's surgery.

Of the 34 attendees, 31 were contacted (91%). Only one attendee had died (3% of the 34). Two attendees were unreachable and their status is unknown to the investigators.

The high dropout rate in the study led the investigators to ask why patients failed to return for their follow-up appointments and whether there were any differences that could explain why some returned and others did not. The dropout problem had changed their original research design directed at measuring quality of life of surviving LVRS patients.

"Bias toward more favorable outcomes may occur when dropout rates are high, as has been the case with most LVRS studies to date," said Dr. Benditt.

Contacted by telephone and questioned about their reasons for nonattendance, surviving patients cited the lengthy driving distance from their homes to the Medical Center, personal issues such as divorce and loss of a family member, and the need for a social support system that could assist with transportation and with preparing the patient for travel.

The average driving distance from nonattendees' homes to the University of Washington Medical Center was 203 miles as contrasted to 52 miles for attendees.

The researchers point out that failure to follow-up (nonattendance) is a well-documented problem in studies developing over months and years. For example, the Framingham Health Study, a pioneering health research project, reported that 31% of screened patients did not return for their first follow-up appointment and another 13% dropped out over the course of the study. It is believed that nonattendance often involves the sickest patients in the project.

Consequently, it did not surprise investigators that their nonattendees had such major medical problems as cardiac disease, diabetes, hypertension, cancer, diverticulosis, osteoporosis, and depression.

The investigators found no differences between attendees and nonattendees with respect to age, gender, preoperative pulmonary function, or oxygen use.

They believe that participation by patients in studies such as this one might be improved by making special provisions aimed at easing the travel difficulties for participants to and from follow-up appointments.

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May 2001 Press Releases

Thirty-six Month Study on Lung Volume Reduction Surgery Shows Improved Outcome for End-Stage Emphysema Patients

"Short-term and Long-term Outcomes After Bilateral Lung Volume Reduction Surgery "  
Kevin R. Flaherty, MD; Ella A. Kazerooni, MD, FCCP, Jeffrey L. Curtis, MD; et al  
CHEST 2001; 119:1337-1346  
Abstract Full text

Lung volume reduction surgery (LVRS) improves pulmonary function, decreases severe breathlessness, and enhances exercise capacity in many patients with end-stage emphysema who have already tried the best medical and physical therapy available for their problem, according to a three-year patient follow-up study published in CHEST.

Writing in the May issue of the monthly peer-reviewed journal of the American College of Chest Physicians, Fernando J. Martinez, M.D., FCCP, of the Division of Pulmonary and Critical Care Medicine, Department of Internal Medicine, University of Michigan Health System, Ann Arbor, along with six associates, noted that the improvements in exercise capacity, which involved walking longer distances in six minutes, were maintained over the entire three-year follow-up. Yet lung function scores, which had increased significantly initially, did decline gradually over the 36-month period. However, Dr. Martinez points out in the article that the "natural history of emphysema is one of progressive deterioration."

Three separate outcomes among the 84 patients who survived 30 days or more were evaluated at each follow-up over three years: lung function, six- minute walking distance, and a breathlessness (dyspnea) index score.

Compared to the baseline scores, forced expiratory volume in one second (FEV1), the lung function test, was significantly increased over the periods 3, 6, 12, 18, 24, and 36 months after surgery although they did decline gradually over the three-year period. The six-minute walk distances increased from 871 feet at baseline to 1,110 feet at three months, 1,214 feet at six months, 1,326 feet at 12 months, 1,342 at 18 months, 1,371 feet at 24 months, and 1,390 feet at 36 months. Dyspnea or severe breathlessness improved at every exam point although less so after 12 months.

Five of the 89 patients who started the study died either in the hospital or within the first 30 days following LVRS. They were excluded from the follow-up data. An additional 11 patients died during the three-year follow-up.

Physiologic follow-up data were obtained for the following number of patients at each testing interval: 79 of 84 (94%) at three months; 74 of 83 (89%) at six months; 69 of 83 (83%) at 12 months; 61 of 81 (75%) at 18 months; 51 of 68 (75%) at 24 months; and 34 of 46 (74%) at 36 months.

The authors point out that a "consistent bias" was not likely in their study because of incomplete follow-up. They tried to minimize potential bias through telephone calls to those who missed follow-up testing. For example, four patients who were contacted had improved so much they had returned to work, thereby precluding their participation in testing.

The LVRS procedure is performed on patients with advanced emphysema. This illness is highlighted by overinflation of the air sacs (alveoli) of the lung, leading to a breakdown in the walls, a decrease in respiratory function, and increasing breathlessness. The disease is associated with smoking, chronic bronchitis, and advancing age. Since lungs damaged by emphysema gradually lose their elasticity, becoming floppy and overexpanded, surgeons remove the most diseased portions of the lung in LVRS, which reduces hyperinflation and leads to better lung elastic recoil. The inspiratory muscles of respiration then operate more efficiently.

"Our study population consisted of patients selected with a prejudice for individuals with focal areas of particularly severe disease amenable to resection," said Dr. Martinez.

The researchers found that computerized tomography (CT) of the lung which demonstrated upper lobe predominance of emphysema provided clues to identifying patients who would have, after the operation, better lung function and greater clinical improvement.

Prior to surgery, all patients underwent a comprehensive one-day evaluation session which included a full physical examination plus patient history. In addition, the candidates had complete pulmonary and lung function testing with associated blood gas analysis; took a six-minute-walk exercise test; had chest radiographs, and received a chest CT. All patients were required to have stopped smoking at least six months previously. Prior to their surgery, the patients were also required to have completed a course of pulmonary rehabilitation.

The patients consisted of 47 men and 42 women whose average age at the time of surgery was about 60 years and five months. The authors noted that older patients had a higher risk of death during surgery.

They noted that no radiographic or physiologic predictor was able to consistently predict a successful increase in either the walking distance test or in the breathlessness index.

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May 2001 Press Releases

Nicotine-Free Pill Effective in Smoking Cessation for all Categories of Smokers

"Bupropion for Smoking Cessation: Predictors of Successful Outcome"

Lowell C. Dale, MD; Elbert D. Glover, PhD; David P. L. Sachs, MD; et al

CHEST 2001; 119:1357-1364

Abstract Full text

A nicotine-free pill was shown to be effective in helping cigarette smokers with various characteristics break their smoking habit, according to a new report published in the May issue of CHEST, the peer-reviewed journal of the American College of Chest Physicians (ACCP).

The report also noted that when people were able to refrain from smoking at the end of the first 14 days, whether they were on the pill or not, their chances of continued success in their quit attempts were much greater.

The pill—a sustained release (SR) form of bupropion—was used by researchers at three sites involving 615 healthy men and women who were smoking at least 15 cigarettes a day and were motivated to stop smoking. Investigators hypothesized that if it were possible to identify smokers who would be more likely to succeed or fail with bupropion therapy, treatment decisions could be made that might increase the patient's likelihood of achieving abstinence. They said "increasing the intensity of the behavioral treatment, adding nicotine replacement therapy to bupropion therapy, and considering residential

treatment for smokers with severe nicotine dependence are all options that could be considered if accurate predictors of abstinence were available."

Study participants were randomly assigned to receive bupropion SR treatment at a dosage of 100, 150, or 300 mg/d or placebo for seven weeks, and were observed for 52 weeks. Demographic information, data on smoking history, smoking rates, and symptoms of nicotine withdrawal during the medication phase were collected, and several questionnaires were administered.

Researchers found that higher doses of bupropion, lower number of cigarettes per day that individual participants had previously smoked, the length of abstinence from smoking in previous quit attempts, and male gender were strong predictors of success in the cessation attempt. Other variables that were found to be predictive of greater cessation rates included abstinence from smoking during the second week following the target quit date, older age, lower scores on the Fagerstr m Tolerance Questionnaire (FTQ), absence of other smokers in the household, and greater number of previous stop attempts. Lowell C. Dale, M.D., of the Nicotine Research Center at the Mayo Clinic and Mayo Roundation in Rochester said that 70% of those not smoking by the end of the second week were still not smoking at the end of the medication phase five weeks later, whether they were using bupropion or not. Of those who were smoking at the two week point. Dr. Dale said, only 5-18% were not smoking by the end of the medication phase.

Speaking on behalf of his colleagues, Dr. Dale said: "Interestingly, male gender predicted greater abstinence rates than did female gender." While some studies have not found a gender difference in ability to stop smoking, other studies, he said, have noted that women have more trouble quitting than men. "This has been attributed to women's greater concerns about weight gain when they stop smoking and to this fear of weight gain as a more frequently reported precipitant for relapse compared to men," he said. Dr. Dale added: "Women also have higher rates of depression than men and are more likely to use smoking as a means of managing negative affect."

Dr. Dale also reported that the findings of this study have been used to construct an abstinence index involving such variables as male gender, previous abstinence from smoking, and average rate of cigarettes per day. This index could be used to determine which participants would have likely success with bupropion therapy and a brief behavioral intervention, and which would need more intensive treatment.

In summary, Dr. Dale said, "this analysis identified the following four important concepts that clinicians may find valuable in treating their patients who smoke: 1. Bupropion therapy is effective for a wide range of smokers. We did not identify any characteristics of smokers that significantly influenced the efficacy of bupropion therapy. 2. The

following characteristics were identified that predicted greater rates of abstinence from smoking that were independent of bupropion use: male gender; length of abstinence from smoking with previous stop attempts; and lower number of cigarettes smoked per day. 3. Smoking status during the first two weeks after the target quit date is an important predictor of long-term abstinence. 4. An abstinence index constructed from this analysis is predictive of success in stopping smoking."

Bupropion SR is available as a prescription drug called Zyban, manufactured by Glaxo-SmithKline, which supported this study with a grant.

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June 2001 Press Releases

Primary Care Physicians Show Gender Bias in Diagnosing Chronic Obstructive Pulmonary Disease

"Gender Bias in the Diagnosis of COPD"

Kenneth R. Chapman, MD, FCCP, Donald P. Tashkin, MD, FCCP; and David J. Pye, PhD

CHEST 2001; 199:1691-1695

[Abstract Full text](#)

Gender bias exists in the diagnosis of chronic obstructive lung disease (COPD), according to the results of a random sampling of 96 American and 96 Canadian primary care physicians. The study is published in the June issue of CHEST.

COPD, a term used to describe chronic bronchitis and emphysema, is a serious airway disease characterized by gradual loss of lung function. In 1996, an estimated 16 million Americans had the illness, which is primarily caused by cigarette smoking. There is no known cure, but smoking cessation can slow disease progress. However, it is the fourth leading cause of death in the U.S., behind heart disease, cancer, and stroke.

Writing in the peer-reviewed journal of the American College of Chest Physicians, Kenneth R. Chapman, M.D., of the Division of Respiratory Medicine, Department of Medicine, University of Toronto, Canada, along with two associates, presented 154 male and 38 female physicians with a hypothetical COPD case presentation, followed by a structured questionnaire given by a trained interviewer. The case described cough and

serious breathlessness (dyspnea) in a smoker in the context of six different versions varying only in the age and sex of the patient. In other words, the hypothetical male and female patients with COPD symptoms had identical clinical respiratory symptoms and identical smoking histories, but could differ in age and sex.

After the physicians were presented with the history and physical findings, they were asked to state the most probable diagnosis and to choose appropriate diagnostic studies for the patient. Next, the physicians were presented with results from a simple lung function test (spirometry) that demonstrated findings of moderate to severe airflow obstruction. In addition, they were told that the use of a bronchodilator had provided no relief from the symptoms. The physicians were then questioned again about the diagnosis. Finally, they were told that oral steroids were tried and again with no response shown. (Had the disease been asthma, then the patient would have been provided relief.)

After the physicians reviewed the history and physical exam information for the potential COPD case, the researchers discovered that the doctors gave 64 percent of the hypothetical male patients and 49 percent of the hypothetical female cases the correct diagnosis of COPD. After the lung function test results were provided, 76 percent of the males and 64 percent of the females were deemed to be suffering from the disease. Following the oral steroid trial results, over 85 percent of the male patients and 78 percent of the female patients were correctly pegged as COPD victims.

The researchers found that asthma was listed as the diagnosis for over 32 percent of the men and almost 44 percent of the women following presentation of the initial history and physical findings. But the asthma misdiagnosis dropped to 10 percent for the men, and almost 18 percent for the women when the primary care physicians learned of the final diagnostic clue- the negative oral steroid use results.

Although they are definitely different illnesses, asthma and COPD are frequently confused. According to Dr. Chapman, in a previous study he performed involving the inappropriate diagnosis of asthma, some patients had endured treatment with two or more anti-asthma medications for more than two years.

"Our data show that many primary care physicians in North America are reluctant to consider the diagnosis of COPD, even when confronted by a middle-aged former smoker with chronic cough, dyspnea, and wheezes on physical examination," said Dr. Chapman. "Moreover, they are less likely to make the diagnosis of COPD in women than in men, a diagnostic bias that is eliminated by the presentation of compatible spirometric data. Regrettably, only a minority of primary care physicians would consider requesting spirometry in the investigation of a dyspneic patient with wheezes and a substantial smoking history."

In this study, only 22% of the physicians requested the simple lung function test called spirometry following the initial presentation of facts about the hypothetical patient with the COPD symptoms. The doctors were much more likely to request a chest X-ray, then blood lab work, followed by an electrocardiogram.

According to the authors, there is growing evidence that women may be more susceptible to the adverse pulmonary consequences of tobacco smoking. They cited two Danish studies that involved 13,897 subjects who were followed for between 7 and 16 years. The investigators in those studies found that women who had smoked had a higher rate of lung function decline per amount smoked than men and were at greater risk of being hospitalized for the treatment of COPD.

"Although women are clearly at increasing risk of developing COPD, the diagnosis continues to be made much more commonly in men," said Dr. Chapman. "By contrast, in studies of emergency department and ambulatory clinical care for asthma, women present with doctor-diagnosed asthma more often than men."

He pointed out it was disturbing to him that some physicians in their survey were remarkably reluctant to use the diagnostic term COPD. Even after the description of persistent and unchanging airway obstruction following two weeks of oral steroid therapy, one in seven physicians continued to use the diagnostic label of "asthma."

Dr. Chapman speculates the physicians may prefer the term "asthma" because they regard it as a disease more amenable to therapy and more rewarding to treat than COPD.

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June 2001 Press Releases

Risk For Lung Cancer Seen Greater Among Breast Cancer Patients Who Smoke Than Among Patients Who Don't Smoke

"Cigarette Smoking and the Risk of Pulmonary Metastasis From Breast Cancer"

Susan Murin, MD, FCCP; and John Inciardi, PharmD, MS

CHEST 2001; 119:1635-1640

[Abstract Full text](#)

Accompanying Editorial

"Cigarette Smoking, Pulmonary Metastases, and Breast Carcinoma: Coincidence or Causality?"

CHEST 2001; 119:1627-1628

[Full text](#)

A new study shows an association between cigarette smoking and the development of pulmonary metastatic disease among women with breast cancer and provides a plausible explanation for the higher rate of fatal breast cancer among smokers, according to researchers.. Pulmonary metastatic disease indicates the spread of cancer to the lungs after originating in another site, such as the breast.

The study was reported in the June issue of CHEST, the peer-reviewed journal of the American College of Chest Physicians (ACCP).

Investigators at the University of California at Davis Medical Center reviewed the records of 87 patients with unilateral, invasive breast cancer and pulmonary metastatic disease and matched them against 174 control subjects who did not have lung metastases. Patients in the control group were matched to study group patients according to age at diagnosis, year of diagnosis, size of the primary tumor and number of positive lymph nodes, if applicable.

Since the lung is a common site of metastasis from breast cancer, and smoking is a cause of numerous changes in the lung that could affect the likelihood of metastatic spread to this organ, researchers hypothesized that smoking might alter the course of breast cancer by increasing the frequency with which breast cancer metastasizes to the lung.

The number of patients with evidence of metastatic involvement of other organs was higher among those in the study group as opposed to those in the control group (72.4% vs 31%). Thirty-eight percent of the study patients vs 29% of those in the control group were classified as ever-smokers; 24.1% of the study patients were actively smoking at the time of breast cancer diagnosis vs. 15.3% of those in the control group. The unadjusted odds ratio for active cigarette smoking was 1.76 for women with pulmonary metastatic disease compared to women without pulmonary metastatic disease. The percentage of patients receiving hormonal therapy (23.2%) was significantly lower among study patients than for control patients (42.8%). Taking hormonal therapy and other variables into account, the final analysis found the odds ratio for women with pulmonary metastatic disease to be 1.96. This indicates that study subjects were nearly twice as likely as control subjects to develop pulmonary metastatic disease.

Researchers Susan Murin, M.D., FCCP. And John Inciardi, PharmD, MS, concluded that "this case-control study suggests a relationship between active cigarette smoking and the development of pulmonary metastatic disease among women with breast cancer. An effect of smoking on the development of metastatic disease from breast cancer provides an intriguing and biologically plausible explanation for the higher rate of fatal breast cancer among smokers. Given that lung injury is known to increase the incidence of pulmonary metastasis, that smoking is known to cause lung injury, and that the inflammatory changes caused by smoking alter the history of a diversity of lung diseases, it is possible that cigarette smoking makes the lung a more fertile environment for the establishment of metastases."

In an editorial in the same issue of CHEST, Glen Lillington, M.D., and David Sachs, M.D., both of Stanford University Medical Center, said: "this study, if confirmed by others, points to the desirability of providing effective treatment for tobacco dependence for those women who are still smoking at the time of breast cancer diagnosis." They added: "Additionally, women who have stopped tobacco smoke exposure only within the previous 12 months should be closely monitored for tobacco use, since relapse back to tobacco use is greatest within the first 12 months after stopping smoking." Noting the many smoking cessation agents that are safe and effective, Drs. Lillington and Sachs said:

"Vigorous treatment for achieving smoking cessation will probably become part of standard therapy in smokers with breast carcinomas."

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