22 patients had no followup chest roentgenogram. Considering the alleviation of symptoms, five of the treated group improved and only three of the untreated. Does this mean that glucocorticoids are effective in alleviating symptoms? The numbers are simply too small to draw any meaningful conclusions.

Indeed, the great control study should be done. Until it is, the pulmonary physician dealing with sarcoidosis patients has the responsibility to decide for or against the use of glucocorticoids in treating his patients. In my view, there is more sound evidence of the effectiveness of glucocorticoids than there is against them. Harkleroad and associates say short-term is no help and I agree. That would suggest long-term treatment is necessary. It seems reasonable to tailor long-term treatment to the status of the inflammatory activity in the individual patient.

Richard A. DeRemee, M.D., F.C.C.P.
Mayo Clinic,
Rochester, Minnesota

To the Editor:

I agree with many of Dr. DeRemee’s statements. His arguments for the use of steroids, however, are based on evidence which is inherently subjective and difficult to analyze. For instance, the analysis of x-ray film findings demands double-blind reading by several observers; scoring of symptoms requires carefully designed questionnaires that must be meticulously analyzed. The euphoric effect of steroids could markedly influence such analysis. Additionally, it is not entirely clear that “inflammatory activity,” if such could be accurately measured, is or would be an important indicator of eventual patient outcome.

As everyone knows, the use of steroids in the treatment of sarcoidosis may cause undesired side effects, particularly with prolonged usage.

Consequently, the practicing physician should measure results in the most objective way possible in each patient. Until definite control studies are done, as Dr. DeRemee suggests, steroids should be used judiciously with treatment schedules individualized, based on response to treatment and the side effects of the medication.

Lionel E. Harkleroad, LT COL, USAF, BSC
Conroe, Texas

COPD Associated with Hypogammaglobulinemia

To the Editor:

The report of Fein et al (Chest 1982; 82:127-29) provides evidence that as with alpha,-antitrypsin deficiency, the obstructive lung disease associated with acquired hypogammaglobulinemia develops from a protease/anti-protease imbalance. Previously presented work1 lends credence to their conclusion. Seventeen patients with acquired hypogammaglobulinemia were evaluated functionally and roentgenographically. While nearly all (16/17) had significant obstruction to airflow, three individuals had chest roentgenograms demonstrating bibasilar emphysema. This striking roentgenographic pattern is a finding nearly always associated only with alpha,-antitrypsin deficiency. The prevalence of bibasilar emphysema among patients with acquired hypogammaglobulinemia supports the theory of protease/anti-protease imbalance in the pathogenesis of lung disease among gammaglobulin deficient individuals.

David M. Rosenberg, M.D., F.C.C.P., Pulmonary Division,
The Mt. Sinai Medical Center, Cleveland

REFERENCE


To the Editor:

We appreciate the observation of Dr. Rosenberg. Bibasilar emphysema occurring in patients with acquired hypogammaglobulinemia appears to support the protease/anti-protease imbalance hypothesis. However, inactivation of alpha, anti-protease inhibitor was demonstrated in this patient rather than deficiency of alpha, anti-protease. What might predispose an individual to have an inactive alpha, anti-protease inhibitor remains to be determined. However, it is clear that patients with acquired hypogammaglobulinemia are more susceptible to a condition closely resembling emphysema.

Jay B. Lipschuts, D.O., Pulmonary Fellow,
Albert Einstein Medical Center; and
Alan M. Fein, M.D., F.C.C.P.
Assistant Professor of Medicine,
Temple University School of Medicine, Philadelphia

Ipratropium Bromide Bronchodilator Solution

To the Editor:

Ipratropium bromide, an anticholinergic bronchodilator is available as a solution for administration to patients by a nebulizer. We report the results of a dose ranging study of the bronchodilator effects of this agent in a group of asthmatic patients. Fourteen patients (seven extrinsic and seven intrinsic asthmatic patients) participated, and the study was approved by the Flinders Medical Centre Clinical Investigation Committee. There were nine women and five men with a mean age of 54.5 years (range 37-63 years) and the mean baseline forced expiratory volume in one second (FEV1) as a percentage of the predicted value was 57 percent (range 29-82 percent).

Each patient abstained from oral bronchodilators for 12 hours, inhaled bronchodilators for eight hours, and continued any steroid medication in the usual dose on the five separate study days. Each study day commenced at the same time of day providing that the patient’s baseline FEV1, after 30 minutes’ rest, was within a range of ±10 percent of the mean for the study. The patient inhaled the aerosol produced from the test solution by a Hudson nebulizer, driven by an airflow of 8 L per minute (mean nebulizer output 0.15±0.02 ml/min), by tidal mouth breathing. The duration of inhalation was 15 min with one interval of one min to allow solution to drain back into the nebulizer bowl. The five test solutions contained saline, ipratropium bromide 50 μg, 100 μg, 200 μg, and 400μg and were administered in a double-blind randomized fashion. Spirometry was measured at intervals over the next six hours and then fenoterol 400 μg was administered from a metered dose inhaler via an aerochamber2 and spirometric response again measured. Statistical analysis was performed by analysis of variance with a multiple range comparison test.2

There was no significant difference between baseline FEV1 values on the five study days (mean value range 1.48 to 1.54 L). The mean increase in FEV1, above baseline (Fig 1) showed that all treatments improved the mean FEV1, response more than placebo saline (p<0.05). There was a tendency for the 200 and 400 μg of ipratropium bromide to cause a greater effect than the lower doses. There was a non-significant trend for the 400 μg of fenoterol to cause a greater increase in FEV1, than that already achieved with ipratropium bromide solution.

Downloaded From: http://journal.publications.chestnet.org/pdffaccess.ashx?url=/data/journals/chest/21335/ on 06/01/2017
A review of occupational exposure data for similar welding conditions does not support the article’s contention that the welder’s exposure was exclusively to aluminum. Data from the American Welding Society suggest that welding aluminum generates exposure to silicon, magnesium, manganese, chromium, ozone, and the oxides of nitrogen, in addition to aluminum or its oxides. There is also evidence that welders in the boat construction industry may encounter potentially hazardous levels of both silica fume and ozone, while welding aluminum. Ozone is a known by-product of the aluminum welding process and may be present in the welding environment in concentrations up to 23 times the permissible exposure level established by OSHA. In addition, silica fume may comprise up to 12 percent of the total welding fume.

There is sufficient evidence that both silica and ozone are capable of producing fibrotic changes in the lung. Stockinger has divided synthetic amorphous silica into three categories: precipitated, fumed, and gel. Silica fume has demonstrated fibrogenic activity in both animals and man. Ozone is also a well-defined pulmonary irritant in man, and exposures of 0.2 to 0.4 parts per million (ppm) can result in diminished pulmonary function. In experimental animals, ozone has been shown to increase collagen synthesis and subsequent pulmonary fibrosis at 1.0 to 1.5 ppm. In addition, ozone concentrations as low as 0.1 to 0.2 ppm have induced morphologic changes in the lungs of rodents. It is obvious, therefore, that ozone and silica fumes could have played a significant role in development of the welder’s pulmonary fibrosis.

The authors’ use of x-ray spectrometry to qualitatively identify aluminum in the welder’s lungs was also questionable, due to a lack of detail. In their Figure 3, the authors referred to lung digestate, but they did not describe how the digestion was completed, nor did they offer any reference to support their procedure as an accepted method for preparing lung tissue for x-ray spectrum analysis. It would also have been informative if normal control subjects had been exposed to the same analytical procedure. The concentration of aluminum in the welder’s lungs may well have been within the normal limits for lung tissue (3.7 mg of Al/kg). However, the quantitative data to make a comparison to normal levels did not appear in the article.

The finding of aluminum in the welder’s macrophages was not unexpected, given aluminum’s ubiquitous nature in the environment and its presence in cigarette smoke. It is surprising, however, that no other metals were discussed in the article, given the welder’s potential workplace exposures to silica, iron, and magnesium.

It is unfortunate, therefore, that the authors isolated aluminum as the cause of the welder’s medical problem without considering other possible etiologic factors.

Homer M. Cole, M.S.P.H.; Ronald E. Benton, M.S.; and Harry L. Skalsky, Ph.D.,
Reynolds Metals Company, Richmond, Virginia
Reprint requests: Mr. Cole, Reynolds Metals Company, 6603 West Broad Street, Richmond, Virginia 23261

REFERENCES
2 Personal communication (Breaux’s Bay Craft, Loreauville, Louisiana, 1982)
3 Silverman L, Gilbert H. Working conditions ambient to inert-gas shielded metal-arc welding. Welding J 1984; 33:218s-229s
5 Vithus VC, Niles NR, Borman JO, Lowry RD. Pulmonary fibrosis from amorphous silica dust, a product of silica vapor. Arch Environ Health 1977; 32:62-6
6 Dineo MJ, Glenn MG, Holtzman MJ, Sheller JR, Nadel JA, Boushey HA. Threshold concentration of ozone causing an increase in bronchial reactivity in humans and adaptation with