In instances of pulmonary edema due to altered permeability in which the microvascular membranes become increasingly permeable to plasma proteins, the measurements of intravascular colloid and hydrostatic pressures provide incomplete information on the multiple factors that account for pulmonary edema due to altered permeability; however, such cases may often be identified by measurement of the colloid osmotic pressure of endobronchial fluid. In hydrostatic and oncotic types of pulmonary edema, endobronchial fluid has a colloid osmotic pressure that is less than 60 percent of that of simultaneously measured plasma. In types of pulmonary edema due to altered permeability, the oncotic pressure of endobronchial fluid exceeds 75 percent of that of plasma and in more advanced stages is identical to that of plasma.

That colloid osmotic pressure is an important variable reflecting prognosis in patients with cardiopulmonary failure is now well documented. In the studies reported herein by Rackow and associates, all six patients in whom the colloid osmotic pressure was less than 12.5 mm Hg died, and all 21 patients in whom it exceeded 24.5 mm Hg survived. This is similar to results of Weil et al. No doubt, in addition to those factors directly associated with pulmonary edema, other factors, including systemic fluid loss related to trauma or infection, impaired mobilization or synthesis of plasma proteins, and more general alterations in the permeability of the systemic microvasculature, may also be operative; however, this does not detract from the fact that colloid osmotic pressure or, more precisely, the defects that are expressed in the lowering of colloid osmotic pressure are of pathophysiologic import to the extent that they prognosticate survival.

Optimally, it is desirable to sequentially measure both colloid osmotic pressure and pulmonary arterial pressure and to compute the colloid-hydrostatic pressure gradient. Measurement of colloid osmotic pressure has the advantage of noninvasiveness, technical simplicity, and small monetary cost. These measurements allow clinicians to be more precise in the selection of resuscitative fluids and especially selective in the use of colloid containing fluids and, at the same time, avoid the iatrogenic dilution of plasma proteins by the oversealous administration of fluids containing crystalloid (noncolloid) substances.

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References


When Consultants Differ

The current structure of American research and medical documentation was castigated in a recent announcement mailed to editors. The correspondent claimed there is no journal which deals with innovative medicine and that therefore even the most inspired researcher may be denied a national forum unless he is an "establishment man." This accusation is directed primarily to journals of original investigation, and, hence, reviewers who have counselled editorial boards on the merits of research studies are implicated in this criticism. Has our system of editorial peer review resulted in an environment hostile to "outsiders?" The distinguished former editor of The Lancet, Dr. Ian Douglas-Wilson, asserts, "I am a convinced opponent of routine peer review of articles—The expert is as likely as not a member of an in-group recoiling from utterances which do not blend rapidly with the group's current thinking."

Has the pendulum swung too far from previous publication patterns of anecdotal reports to standards which stifle innovation? I would contend that such accusations are unfounded. Indeed, medical journals have recently been criticized for publishing too many studies which are "controversial." Editors are urged to accept only those papers which contain information that has been "tested and approved." This is evidence that editors do indeed exercise the privilege of publishing studies with concepts opposed to prevailing medical opinion. Meticulous reviews by consultants have not impeded such documentation. Therefore, unlike Dr. Douglas-Watson, I have urged that all manuscripts receive scrupulous review whether these papers be intended for a general journal or a specialty periodical, since, "Editorial peer review associated with final independent judgment by the editor constitutes our best and most consistent protection of intellectual freedom and scientific integrity."

What shall the editor do when referees differ in their opinions of the validity and relevance of submitted reports? Drs. Comroe and Dripps maintain that reluctance to publish articles on which editorial referees disagree is one of the factors responsible for
the slow application of new knowledge. One method of permitting dissemination of "controversial material" is to encourage the publication of a rebuttal in the same issue. We frequently publish editorials in Chest which accompany and criticize elements in reports which have deficiencies and yet deserve a national hearing. This critical analysis by editors or consultants is a procedure which permits the readers to obtain a balanced view. In addition, discretionary readers serve as vital arbiters in the evaluation of the significance of published recommendations. In a commentary which accompanied publication of an investigation which was not a controlled trial, I noted that there are instances when the editor should be privileged to say to authors, "Although the final draft of your report contains deficiencies, we agree with you that this information deserves further scrutiny. Therefore, we accept the paper for publication so that it may receive critical review from our entire readership."  

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REFERENCES