care as we look at left ventricular obstruction during catheterization. Echocardiography would tend to overlook obstruction on the right side since the right ventricular outflow tract is not readily apparent and seldom evaluated under inotropic stimulation. This finding helps to further the concept that this disease involves the myocardium as a whole and it manifests itself as an obstruction where the anatomic features allow the changing size and shape to impede ejection at rest or with inotropic stimulation.

Recent pathologic studies have shed some light on the ultrastructural characteristics of the myocardium in this disease. These studies were obtained on septal biopsies from patients operated on. The changes noted were 1) intracellular abnormalities (disarray of myofibrils and myofilaments), 2) cell-to-cell abnormalities (disorganization of muscle cells, abnormal cell contacts). On biopsies of other portions of the myocardium (left ventricular apex and left ventricular posterior wall) cell hypertrophy was present in all cases. In patients with obstruction, no cell-to-cell alterations were present and intracellular abnormalities were observed in only three of eight patients. In patients with obstruction, changes as described in 1) and 2) were noted. They conclude that most changes occur in the septum. Nevertheless, comprehensive studies of other areas of the myocardium are not available. Some of the changes seen in operative cases are from patients with severe disease who have undergone secondary changes, and may not reflect the original situation.

Much remains to be learned about this disease, but if a disease involves the myocardium, it can be associated with any congenital or acquired anomaly.

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References

Flexibility in Medical Writing*

This is the first of three communications on scientific writing and the purposes of medical journals.

Editor

"What format shall I use for the preparation of an article to be submitted to a medical journal?" This is a question frequently asked at workshops devoted to medical writing. To this inquiry we often respond, "Which journal and what department in that journal would be most appropriate for your communication?" The structure of an article is partially dependent upon the journal section for which it is intended, since this is a reflection of the purposes for which the report was written. The guidance provided by an editorial is significantly different from that of a review article. The review, in turn, has a different purpose than the original investigation. Even the neophyte author is cognizant of the major differences between the purposes of a case report and a book review.

Let us assume that the author is planning an article which describes a study of 50 patients who have received a new therapeutic regimen. One may begin by preparing an outline which identifies the major conclusions and the data needed to validate these conclusions. The author must formulate a title

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which is short but descriptive and which accurately identifies the thrust of his message. It is usually appropriate to prepare an introduction to the communication. These introductory sentences or paragraphs suggest why the study was undertaken, ie, what information was sought and the relevance of this information to scientific advancement. The author should provide a section on methodology which includes the tests and instruments used and a description of the patient population (or laboratory animals) used in the study. This section should be detailed enough so that, if indicated, other investigators can repeat the experiment. A results section may follow and herein is contained the "hard data" obtained in the study. The next section is the "discussion" which may contain an interpretation of the data and the investigator’s evaluation of the clinical applicability of the observations. The discussion section provides an opportunity for comparison with the results obtained by others. This "formula" of introduction, methods, results and discussion is the most common format in current medical literature.

The distinguished editor, Dr. Franz Ingelfinger, once rebuked clinical journals for their inflexible reliance upon this formula which he called "IMRAD." It is the author's privilege to offer a writing style uniquely his own, one that has not lost individuality because of rigid compliance upon any single formula. There is, however, considerable virtue in including the elements of this formula in most reports.

Some authors cite "conclusions" in the discussion. Others prepare a separate conclusions section which serves to interpret the data and the discussion in the context of the investigator's understanding of the outcome of his studies. He may define in these concluding comments the implications or the relevance of the observations. Whether or not conclusions are mentioned in the discussion or presented as a separate department, it is important to prepare, in addition, a synopsis or abstract. The summary has achieved a unique position in medical literature. Many editors prefer to place the synopsis in the front of each article, whereas other journals retain the more traditional position at the end of the communication. The position is not as important as the preparation of this vital element of each report. It must clarify the purposes for which the study was undertaken and it should contain the major conclusions. These meanings should be clear even to the reader who is not intimately conversant with the discipline which was the subject of the investigation.

Not a word can be wasted if all this is to be accomplished in 150 words. We recently reviewed an abstract which stated "certain tests are discussed." The second sentence stated "previous studies are presented" and the third noted "an explanation of why some of these tests are inadequate is given." Such phraseology is appallingly noninformative. Abstract content must be factual: using a direct approach, the author should have supported his thesis with a brief listing of new facts.

Is there a place for the personal pronoun in a serious scientific communication? Fortunately, most authors are losing their prejudice against use of the first person. It is both forthright and illuminating to say "I noted that" or "I believe." The modesty of past decades in which this was frowned upon (except perhaps in editorials) has been abandoned. This change may be related to sociologic changes which have brought more candor and directness into personal communication. Compare the Victorian fashion of writing with the more terse modern style. Another virtue of using "I" or "we" from time to time is that it avoids the passive voice. Thus, instead of writing "this paper concerns itself with" one can state in a more forceful and interesting fashion "we wish to describe a case." I applaud the advice of King and Roland that the excessive use of the passive voice is dull writing. Instead of writing "catheterization was performed in each patient by the resident" why not note "the resident catheterized each patient" or better still (whenever applicable) "we catheterized." This approach is not synonymous with anecdotal or chatty writing, but rather it is a method of enlivening and strengthening scientific communication.

Several drafts of the paper should be written before submission of the final version for publication. Vital assistance may be obtained by permitting a colleague to review a later draft. It is astonishing how often sentences which seem entirely clear to the author require additional clarification. The writer is often "too close" to the manuscript to identify ambiguous areas without the help of a second party. A last critical step should be taken to be certain that all redundancy has been removed. Excess words are an imposition upon the reader and may be deleterious to understanding. We assume that excess verbiage has been removed with every draft of the manuscript. We refer now to specific revision of a late stage copy for the exclusive purpose of removing unnecessary words. This can be a very rewarding exercise in the quest for forceful writing. Be on the lookout for phrases which lengthen text and weaken writing style. A valuable clue to such defects is the presence of expressions beginning with the indefinite "it" followed by the verb "is." One should eliminate phrases beginning with "it is perfectly obvious that" or "it is entirely possible that" or "it is
becoming increasingly apparent that.” Read the sentence before and after these words have been deleted to identify how unnecessary they were!

We abuse the English language in daily conversation. Listen to the dialogue in the hospital corridors and wards with the thought of identifying cliches, jargon, sloppy sentence structure and poorly descriptive phraseology. This is a sad phenomenon which may explain some of the problems faced by medical editors. It is far more serious to permit such bad habits to confuse and weaken our medical periodicals. Fortunately, these are defects that can be corrected by frequent rewriting and the author’s insistence that “this paper will not pass my hands if it contains words which are unnecessary to my message.”

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Reference