tions in O₂ consumption, and additional basic research is needed to clarify the mechanisms limiting O₂ extraction and to suggest a rational therapeutic approach to maintaining O₂ delivery and uptake. Note that prior studies detected limitations of aerobic metabolism as a relationship between O₂ delivery and VO₂. Yet these variables were calculated from measurements which are not independent, a statistical situation known to cause spurious correlations. Future clinical studies and basic research would benefit from determinations of VO₂ independent from variables used to calculate QO₂, or from an index of the limit of aerobic metabolism other than decreasing VO₂. Given such improved methodology, it will be possible to quantitate the favorable or adverse effects of disease states (sepsis ARDS, shock) and therapeutic interventions (vasoactive drugs, PEEP, endorphin antagonists, hypothermia, respiratory muscle relaxation) on the limits of aerobic metabolism.

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Computerized Information Retrieval
A New Technology and a New Service

Almost 50 years ago, a group of physicians who specialized in chest medicine determined that if they organized into a member society, they could better help one another stay current in the advances of medical science. Little did they know that by 1984, when their society was about to celebrate its 50th annual conference, there would be thousands of medical journals publishing tens of thousands of articles each month.

Medicine is both a beneficiary and a victim of the Information Age. Fortunately, that same Information Age technology which has helped to increase the amount of information available has also given us the tools to deal with it. The American College of Chest Physicians is now very pleased to announce to its members that a new series of member services, using the most modern and sophisticated computerized retrieval procedures, is available for member use. We have arranged for discounts for our members with two types of computerized information retrieval services: a professional search firm and two on-line database retrieval services. The purpose of this article is not to explain these services; details on the services appear on page 23 in this issue. Rather, the objective of this commentary is to present the technology and to discuss the ways in which to benefit from it.

Computerized information retrieval is the use of a computer to access articles, abstracts, journals or textbooks. Physicians today need to know about computerized literature searches because there is simply no other way to keep up with the vast amount of literature. Keeping up with the literature is critical; we live in an environment in which change in medical practice is occurring very rapidly. Computerized information retrieval has the capability to assist physicians in sorting and retrieving the most relevant and current information in very little time. It is the literature search technology of the future.

In order to visualize computerized information retrieval, imagine several organizations whose job it is to index, abstract and enter information into computers. These organizations are called database producers and include such old friends to medicine as the National Library of Medicine (MEDLINE is their database) and Excerpta Medica. Add to that picture an information vendor whose organization serves as the middleman. An information vendor is the connection between the user and the database. In addition to these two levels of organization, there are professional searching services which will access the vendor for an additional fee.

There are many approaches to using computerized information retrieval. Not all of them require access to a computer. For instance, most medical school libraries regularly conduct computerized literature searches of the databases for their faculty members. Large corporations or institutions may also have staff who can perform literature searches. If these resources are not readily available, however, an ACCP member can do his/her own database search through a professional search firm or directly, using a terminal or computer and modem. Whether the individual does the searching or it is done professionally, the procedure is the same: the searcher uses a telephone line and a terminal to call the information vendor. This is "on-line" database retrieval. Communication between vendor and searcher appears on the searcher's terminal screen and is controlled through his/her keyboard. Using the
keyboard, the searcher can specify topics, authors, journals or combinations of these. The database computer examines all records filed with that descriptor, and reports the number to the searcher. The searcher can request that these records be printed or that further searches be conducted on them. The amount of time spent in communication with the database computers is the basis for the cost of the search. When we at ACCP conducted sample searches using our computer, we seldom spent more than 20 minutes of computer time on a topic. At the rate of about $35 per hour (databases vary in their cost), our bill for a topic would have been less than $12.00.

The American College of Chest Physicians believes computerized information retrieval can be a significant tool when used by a physician to remain current in his/her medical specialty. This review and the discount arrangements outlined on page 23 in this issue reflect our commitment to the continuing education of the chest physician and surgeon. That commitment is ongoing; the Information Age is just beginning, and we will meet it together.

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Treating Hyperlipidemia to Provide Salutary Effect on Coronary Artery Disease

The treatment of hyperlipidemia for prevention and control of coronary artery disease (CAD) has not been accepted by many physicians with enthusiasm. This may be due in large part to: (1) the difficulty in identifying atherogenic types of hyperlipidemia (hyperlipoproteinemia); (2) the lack of response of most atherogenic hyperlipidemias to treatment; and (3) the slow amelioration of atherosclerotic complications with hypolipemic therapy.

Goal of Treating Hyperlipidemia

In patients with coronary artery disease who have well-defined types of hyperlipidemia, beneficial effect is believed to derive from the control of the abnormally high atherogenic low density lipoproteins (LDL) and/or their apoprotein B components. Hence, the ultimate aim of treatment of hyperlipidemia is to prevent or improve complications of CAD—angina pectoris, myocardial infarction, ventricular ectopy and impaired myocardial function. In order to achieve this goal, the therapy should be able to exert one or the other beneficial effect upon coronary artery atherosclerosis. The list of salutary therapeutic effects may range from prevention of development of atherosclerotic lesions, through facilitation of lesion regression and stabilization to retardation of its progression.

The Difficulty in Identifying Atherogenic Hyperlipidemias

Plasma lipoprotein phenotyping and genetic analysis of hyperlipidemias have been made to delineate disorders of patients with CAD. However, practically all of the definable types of hyperlipidemia or hyperlipoproteinemia can be induced by various environmental factors. This constitutes the prime reason for our inability to establish a convincing correlation between hyperlipidemia and CAD.

Patients with Familial Hypercholesterolemia (FH) or Type 2 Hyperlipoproteinemia

Among the various clinical-genetic types of disturbance in lipid metabolism, FH differs from the others as a well-defined genetic disease entity. Its diagnosis can be firmly established by a combination of clinical and laboratory findings with survey of family members of the afflicted patient. Carefully conducted studies have shown that heterozygous FH is a fairly commonly inherited form of disturbance in lipid metabolism with a propensity for premature and progressive coronary artery disease. If, through control of hypercholesterolemia and LDL elevation, favorable clinical and pathophysiologic effect were demonstrated in FH patients with coronary artery disease, the efficacy of hypolipemic therapy could be affirmed.

Effective Hypolipemic Therapy

The problem in controlling FH lies in its resistance to treatment. Recently, several groups of investigators have developed a successful combination of low cholesteroler-saturated fat diet and bile acid sequestrant (colestipol or cholestyramine)—nicotinic acid to lower serum cholesterol and LDL-cholesterol by more than 50 percent. A class of fungal metabolites, compactin and mevinolin, has been developed to inhibit 3-hydroxy-3-methylglutaryl-CoA reductase, a rate-limiting enzyme in cholesterol synthesis. The combined use of either one of the enzyme inhibitors and bile acid-binding resin has resulted in normalization of hypercholesterolemia and LDL of heterozygous FH patients has been reported.

Effect of Hypocholesterolemic Therapy on Atherosclerosis

The key question is whether hypocholesterolemic therapy could exert a discernible beneficial influence on atherosclerotic lesions in man. In asymptomatic patients with early peripheral arterial lesions, regression of lesions has been observed. On the other hand, long-term control of hypercholesterolemia and LDL-