Oxygenation

The utilization of pump-oxygenator equipment to support the patient undergoing cardiac surgery is known to all. By and large, the majority of these cases are elective, scheduled surgery with only a small percentage done as emergencies. But it has been recognized of late that the partial support of patients suffering from cardiac disorders can be beneficial to salvaging a hitherto lost individual. A surgeon from Cleveland, Ohio, recently went on record as saying that pump-oxygenator support for patients in intractable heart failure has resulted in a sixty-four percent immediate survival rate.

In such instances as a relatively young person in an arrested condition who is not responding to ordinary resuscitative measures, or an individual in severe right heart failure who is not responding to treatment, or a post-infarct patient with a low cardiac output the pump-oxygenator may be applied to restore circulatory function while relieving the diseased organ of its full work load. Such treatment may be necessary for a few hours or for several days (when the proper equipment is available).

This will establish a need for around-the-clock availability and multi-shift staffing of trained and qualified technologists. Where are all of these specialized and knowledgeable individuals to be found? This is the only one of many questions to be answered before such emergency support programs can be established and function efficiently.

Not only must such personnel be available but they must be efficiently deployed. Where, for instance, one or two technologists can handle a program of elective cardiac surgery with an occasional emergency, a need for three or four such individuals to properly implement the support program immediately develops. How are these specialized people to be utilized between cases? Will the technologists from several institutions have to work out an arrangement for "on call" availability and cover for each other on the odd shifts? Or will a group of these people in "private practice" contracting with several institutions (particularly medium-sized hospitals) provide service more efficiently?

What records must be kept by the technologist on each shift so that his replacement can "get the picture" when he relieves him? What instrumentation or laboratory studies should be available to him to develop that picture? Should he be allowed to order these studies and utilize this instrumentation in order to properly maintain the physiologic parameters prescribed by the doctor in charge? May he interpret the parameters measured and act upon this information? Or, should he rather have counsel from the medical man before responding?

Since a doctor will probably not be in constant attendance simply because of the time involved, where does the liability for the patient's well-being lie? Is the doctor still the principal agent? Or does the institution assume this role?

In view of the fact that the doctor's time is already at a premium, what authority can he delegate to the house staff, the technologists, and the nursing personnel? The patient must have optimal care even though he cannot be physically present. Must not the qualifications and training of these support personnel be upgraded so that their level of responsibility can likewise be increased? Where are these top-level technologists to be found, how are they to be trained, and how can the medical

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In a recent communication from Bio-Medical Electronics (653 Lofstrand Lane, Rockville, Maryland 20850), they are introducing a Peak Reading Voltmeter, Model PV 122. This instrument was designed to satisfy a broad range of instrument requirements and provides three modes of operation: Minimum, maximum, and track. The track mode permits continuous tracking of the input signal; the other modes permit automatic readout and display maximum or minimum value. The PV 122 employs digital techniques and does not depend upon storage capacitors as memory elements. The value is determined and stored digitally and can therefore be stored indefinitely without any deterioration. Any shape waveform can be tracked up or down at rates of up to 100 volts per millisecond. RS-2

Two new predictability flowmeter kits have just been introduced by the Manostat Corporation, 20 North Moore Street, New York, N. Y. 10013. The Tri-Flow Predictability Flowmeter Kit offers a variety of mounting possibilities and includes four of Manostat’s flowmeters, ranging in capacities from 1.3 to 18,400 ml./min. air flow and from 0.0175 to 545 ml./min. water flow. Also included are a self-centering, non-rotating tube seat, a removable acrylic safety shield, an integral needle valve which can be utilized at either the inlet or the outlet end, and four Tri-Flat (R) flowmeter tubes. The flowmeters provide accuracy within 2% along their full scale. The second kit consists of Manostat’s five standard Tri-Flat flowmeters with plain ends, covering a full range of flow requirements from 1.3 ml./min. to 68,200 ml./min. air flow. Each kit contains all necessary flow and calibration charts. RS-3

Oxgenation . . .

Support for fifteen hours or more is possible with equipment presently in use. Greater usage of this technique by aggressive surgeons and cardiologists is already occurring. The equipment for longer support procedures will be presently available. We should be prepared to service such programs efficiently with high standards of patient care.

New Product

The new AMBEC Extracorporeal Perfusion Unit provide all the instrumentation and equipment needed for both in vitro and in situ perfusing of small organs and tissue samples, according to an announcement by Samuel H. Gilbert, Jr., president of Beck Industries, the manufacturer. RS-4

A completely self-contained instrument, the AMBEC Extracorporeal Perfusion Unit permits the investigator to preserve viability in the isolated tissue under study and to conduct one or more experiments simultaneously.

A completely new autotraumatic blood pump, an extremely low hemolysis rate, physiologically inert surfaces in the blood system and precise temperature control from 0° to 37°C are among the most important features of the new unit, Mr. Gilbert pointed out.

Currently being used in leading medical research centers here and abroad, the AMBEC Extracorporeal Perfusion Unit provides the investigator with virtually unlimited growth in perfusion-related medical research.

Greiner Scientific Corp., 22 N. Moore Street, New York City 10013, announces its new “Porton” Resuscitator. It is designed to operate on a simple bellows principle with a face mask, it is easy to operate, and weighs only two pounds. The unit is meant for general use in reducing the approximately 75,000 deaths each year caused by asphyxiation from such causes as poisonous industrial gases, electric shock, heart attack, and drowning. RS-5

EXTRA-CORPORAL TECHNOLOGY