A Statement of The American Academy of Cardiovascular Perfusion

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The American Academy of Cardiovascular Perfusion (AACP) acknowledges and concurs that the primary responsibility for the care of the patient undergoing procedures involving cardiopulmonary bypass (CPB) rests with the Surgeon/Physician-in-charge. The AACP believes that it is the responsibility of the clinical perfusionist to assist the Surgeon/Physician in any way possible in this patient care, and particularly within the defined areas of expertise of the clinical perfusionist, which may include but not be limited to, all perioperative patient services required. These may consist of procedures involving blood sequestration, processing and reinfusion; cardiac assist; and other extracorporeal services deemed necessary by the Surgeon/Physician-in-charge.

The AACP endorses the following guidelines in the practice and conduct of CPB, and acknowledges the necessity for the membership to participate in the preparation, presentation, and publication of scientific information. The AACP also acknowledges that the development of practice guidelines is an ongoing process due to evolving extracorporeal technology.

RECORDS

A written or electronic perfusion record should be kept of each extracorporeal procedure, and should include pertinent direct or indirect patient information during the procedure (e.g., medical record number, age, weight, important preexisting conditions, diagnosis, equipment used including model, serial and/or lot numbers). Drugs and fluids added through either the prime or extracorporeal circuit during the procedure should be upon the prescription of a physician, and time and amounts recorded as part of the record. Perfusion parameters should be recorded at no less than every 15 minutes or whenever one the parameters is changed or changes, whichever is shorter.

Perfusion parameters that should be recorded (but not limited to) are: time; flow rate; perfusion pressure(s); temperature(s); perfusion gas mixtures and flow rates. Blood gases should be recorded when obtained, and any other pertinent information (e.g., drugs added, fluid added, instructions regarding changes to gas and blood flow, cooling and rewarming). A copy of the perfusion record should be retained by the clinical perfusionist. The original should be placed with the patient's medical record, if that is within the particular hospital rules and regulations. This record should contain all other information pertinent to the CPB procedure.

PERSONNEL

Two qualified perfusionists are preferable during a CPB procedure. If the primary perfusionist is required to do more than operate the heart lung machine and extracorporeal circuit) as well as perform manipulations with the circuit (e.g., draw blood gas samples, administer cardioplegia, and add drugs on prescription) then the primary clinical perfusionist should have a qualified assistant available.

CHECK LISTS

A PREBYPASS check list should be employed prior to initiating CPB. This list should include, but not be limited to, confirmation of patient identity, blood type, allergy/antibody status, and procedure to be performed, integrity and expiration date of disposable components, evaluation of flow meters/RPM gauges, roller pump occlusion, pressure monitors, flow direction in the tubing through the pump head(s), electrical and tubing/component connections, safety devices, temperature probes, temperature regulation equipment, backup equipment, and general integrity and security of the circuit. The initial heparin dose and time of administration should be verified and must be recorded. If assisted venous return is being used, appropriate high and low pressure relief valves should be employed on the hardshell reservoir. It is also recommended to have in place an EMERGENT RESTART OF CPB check list, as well as a TERMINATION check list and/or POST-CPB check list.

EQUIPMENT

Optimal performance and safety of the extracorporeal circuit is the prime concern of the clinical perfusionist. Although the weight of the patient, preexisting conditions and the selected operative procedure will dictate certain characteristics of extracorporeal equipment selection, other aspects of equipment/component selection are not so affected.

The clinical perfusionist should utilize safety equipment currently available in the selection of the extracorporeal circuit (e.g., low level alarm sensors, bubble detectors, automatic shutoff devices, arterial line filters, one-way valves and others deemed appropriate for safety).

Cardiotomy suction and vent return lines should be tested prior to use for proper direction. Permanent equipment should have periodic scheduled preventive maintenance, and records of such maintenance should be kept by the clinical perfusionist. The clinical perfusionist should consult with the surgeon/physician in charge of the procedure regarding appropriate equipment selection and is encouraged to develop written protocols in conjunction with the other disciplines involved in the application of extracorporeal technology.

Clinical perfusionists should make genuine efforts at cost containment through the various methods available to them.

PERFUSION

During CPB, an adequate volume should be maintained in the perfusion circuit if an interruption of systemic venous return should occur. This volume of fluid should permit a reaction time of at least 10 seconds and should be incorporated with the use of appropriate safety devices. The blood flow rate should be maintained at such a level that inadequate tissue perfusion is not permitted (e.g., increasing metabolic acidosis, venous oxygen desaturation, EEG changes). Perfusion pressure should be maintained at an adequate level so that organ preservation and function are not compromised or impaired function detected.

Anticoagulation assessment should be performed on a routine basis during CPB, and should be included as part of the perfusion record. Anticoagulation should be adequate to prevent clotting in the extracorporeal circuit and the consumption of clotting factors. During the time that the cardiopulmonary bypass machine is not being used actively to transfuse blood or support the patient, both the arterial and venous lines must be securely clamped.

GENERAL

The AACP encourages the clinical perfusionist to take an active role, in consultation with the surgeon/physician in charge, in developing patient contact. It is through this personal contact that promotion of responsibility and accountability of perfusion services is developed. Each patient is an individual whose preexisting clinical condition and disease may dictate specific cardiopulmonary bypass considerations. A thorough knowledge and understanding of the patient's medical history through study of the medical record should be developed.

While this statement is not wholly inclusive, it represents a statement of recommendations that should be carefully considered by the clinical perfusionist. This statement will be periodically updated to represent the current status of recommended guidelines of practice.