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Alcor News Bulletin-----
Number 27: June 9, 2004
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Last-Minute Case in May

Alcor was contacted by the son of the patient, an elderly woman being sustained on life support in the Miami area. Informed consent, legal documentation, and payment were all obtained promptly, and a two-day standby was performed. Because they happened to be in the area, Joe Waynick and Todd Huffman collaborated with the Florida teams to provide standby and stabilization care.

The patient, Alcor's 64th, was pronounced in the early morning of May 13, the expected medications were administered, and she was then removed to a funeral home. Because of extensive sclerosis in the femoral vessels, the patient was washed out using the right carotid, but this fact was not communicated to the operating room team and precipitated an early cryoprotective ramp. Because the neck

was obscured by ice bags and drapes, we failed to locate the additional source of leakage in an already difficult surgery. Despite the problems during surgery, the cryoprotection went fairly well.

This whole-body patient was cooled to -79°C using the upgraded cooling system that was deployed between our recent cases (more on whole-body gaseous cooling below). She will also be the first patient placed into the new patient care bay. [TJ]

Dewar Relocation

With this latest whole-body addition to our patient population, we had to activate our last remaining Bigfoot, #8, which was also the last Bigfoot unit constructed. Unlike previous units, it is too tall to simply push through the door. (The extra height means greater efficiency in use of liquid nitrogen, which lowers the cost of patient maintenance--see the article that follows. For this reason we expect our future Bigfoots to all be of this taller design.) Unfortunately, this meant we had to move the dewar to its new home prior to filling it with nitrogen and transferring the patient and prior to the completion of the patient care bay renovations. The move, completed May 26, required that we rent a crane and extension. We were then able to lift and tilt the dewar sufficiently to pass through the existing patient care bay door.

Last October we had provided for the new patient care bay by raising the height of one door to accommodate the taller dewars we would be placing inside. Once we got Bigfoot #8 outside and in front of the taller door, rolling it into place was simple; everything went smoothly.

Until the two new dewars currently under construction are completed later this summer, we have only the two cooling units as back-up. [TJ]

More about the Taller Dewar

Our newest dewar, Bigfoot 8, stands approximately ten inches taller than the other Bigfoots, and the lid on top is correspondingly thicker, with 24 inches rather than 14 inches of insulating styrofoam. The extra insulation means the interior is better protected from outside heat, which means that liquid nitrogen boils off more slowly. To quote some actual figures, preliminary testing indicates Bigfoot 8 is boiling off about 12 liters of liquid nitrogen per day versus 14-15 liters per day for the other Bigfoot containers. It may not seem like much, but it's roughly 15-20 percent less nitrogen consumption, and over time it will add up. [MP]

Local Standby Performed

One of our local members contracted an unspecified infection, one that led to his being admitted to the hospital critical care ward for nearly ten days. On May 23 we launched a standby team on-site and maintained it for nearly a week, until the patient had recovered sufficiently to be transferred from the ICU.

This patient has recovered well and was released from the hospital prior to the Board meeting. [TJ]

Gaseous Cooling for Whole-Body Patients

Our procedures for the first-stage cooling of whole-body patients have typically involved placing the patient inside a pair of plastic sacks, lowering them into a bath of silicone oil, and adding dry ice at regular intervals to reduce the temperature. As a well-trusted legacy system, using the oil bath on whole-body patients was considered a given, despite its less-pleasing aspects.

The oil was slippery and a safety hazard during transfers. It was difficult to clean after each patient, requiring up to a week of filtration to restore for the next use. The oil was also expensive, and every case led to some loss to the system. Moreover, it was time-consuming to place a patient into several plastic bags prior to the start of this first-stage cooling (to dry ice temperature) and then remove the bags afterward prior to the final cooling (to liquid nitrogen temperature). Inevitably there was some warming of the patient at both points in the cooling process; clearly it was time to phase out the silicone oil used in our procedures.

A while back, James Sikes and Hugh Hixon had spent time developing the hardware needed for gaseous cooling of whole-body patients. Overall, it took little time to assemble the parts needed to make the changeover. The new system, it turns out, has a decided advantage. It allows a rapid plunge to a temperature slightly above the known cracking points of the cryoprotectant used (in this case, glycerol), which serves to significantly reduce ischemic injury.

The hardware worked as planned, the computer-controlled descent went as expected, and all parts worked together to give this latest patient the fastest whole-body cooling to -79°C ever. We haven't removed the silicone oil from the facility yet, but plan to wait until there has been sufficient reliability testing on the new system. [TJ]

On Readiness

After the last cryopreservation, all the pumps from the heart/lung machine were removed for cleaning and as a consequence the stand became top-heavy and toppled. Our computerized LabView system with thermocouple and refractometer equipment fell on the floor. Both monitors were damaged and disposed of and the other equipment has not

been fully tested to see if it is problem-free. Until this equipment is brought back on line, we will have a greater need for helpers in the operating room for sample taking. Prior to the use of LabView we had 5 team members (including sample takers for lab testing) who were dedicated to taking samples and charting the refractive index on the wall. More extensive testing will occur once all critical readiness tasks have been completed.

Over a 10-week period this year Alcor performed 5 cryopreservations. Our current state of readiness has improved over what was reported by Mathew Sullivan to the Board last month, despite the fact of adding another patient. Yet we are beginning to see the limitations in our ability to deliver service as a consequence of waiting to get our equipment sterilized. Following the last cryopreservation we were on alert for a local member, and had both our whole-body and neuro instrument trays in for sterilization. Our problem is more challenging because of an increase in the turnaround time caused by moving to a new provider: from 1-2 days to as much as a week or more. Without additional surgical instruments and/or our own ability to sterilize our equipment there will be complications in the future with our current rate of activity. We are investigating our options on both of these issues. [MS]

Membership Statistics

On May 31, 2004 Alcor had 660 members on its Emergency Responsibility List. One membership was approved during this month, no memberships were reinstated, two cancellations were processed, and one suspension was performed. Overall, there was a net loss of two members this month. [JC]

Next Board Meeting

The next Board meeting is scheduled for Saturday, July 10, 2004 at 11:00 AM (PST), also 11:00 AM local Arizona time.

Board meetings are held on the first Saturday of the month at the Alcor facility (7895 East Acoma Drive in Scottsdale, AZ). Members are encouraged to attend.

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