Alcor A-2930

Case Report

LIFE EXTENSION FOUNDATION
The World's Leader in Cryonics
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1. Summary

Information was derived from multiple sources and was all converted to Mountain Standard Time (MST). For de-identification, dates are not shown. T-0 represents the date of cardiac arrest, T-X represents occurrences before T-0, and T+X represents occurrences following T-0.

A-2930 was a 41-year-old member with whole-body cryopreservation arrangements. This was a postmortem notification, approximately 5-7 days after estimated cardiac arrest. An autopsy was required. This was a cryopreservation without cryoprotection (a straight-freeze procedure). The member was pronounced legally deceased in New York at 18:54 hrs on T+6 days. Alcor was notified of the death on T+6 days.

After recovery, the patient was air transported to Alcor for cryogenic cooldown. The patient arrived at Alcor on T+12 days at 12:00 hrs. The cryogenic cooldown was initiated on T+12 days at 12:08 hrs and terminated on T+17 days at 17:25 hrs. The patient was transferred to long-term care at liquid nitrogen temperature on T+31 days at 13:11 hrs.

2. Patient Assessment

T-0 days

This patient was not on the Alcor Watch List. This was a sudden and unexpected death of a relatively young member with a history of traumatic brain injury when the member was younger. Due to this earlier injury, the member had a history of epilepsy, which was controlled with medications.

The member was last seen alive on this date. There was no estimate of when cardiac arrest took place but for this report it was estimated to be 12:00 hrs on T-0 days.

T+6 days

The member had been found at home after the family requested a welfare check. The member was face down in the bed with obvious signs of decomposition from being deceased for multiple days. At 23:00 hrs, the member's family gave Alcor postmortem notification of this member's legal death following the member's discovery and arrival of the police. The member was pronounced legally deceased at 18:54 hrs.

The member was in the custody of a local medical examiner's (ME) facility being kept in the morgue cooler which was maintained at -2°C to +4°C. The ME was cooperative and aware of the member's objection to autopsy. They stated that they would attempt an external examination only, and if an internal examination was required, they would attempt to avoid the brain.

Arrangements were made with a local funeral home to pick up the patient when released by the medical examiner.

T+7 days

Both the ME and the family wanted to perform the autopsy to determine cause of death, but they both also wanted to honor the patient's wishes to avoid autopsy. As a consequence, the coroner's office did not want to proceed until advised by their legal department. The legal department was not open on the weekend, so it would take another day.

The ME wanted to ensure they had no legal obligation to autopsy before releasing the patient to Alcor. The ME had scanned the patient's brain, which showed decreased structural integrity. Alcor's MRD explained that Alcor's policy is to cryopreserve any tissue in any condition. The ME verbalized understanding.

T+8 days

The family of this member had retained an attorney and were in touch with the Alcor attorney. There had been no determination by the ME's legal department that morning.

Alcor's MRD learned at 17:45 hrs that the patient would be autopsied and then released to Alcor unless there were legal objections from any other party, which was not anticipated at that time.

3. Deployment

T+9 days

The Alcor Deployment and Recovery Team (DART) deployed at 13:10 hrs. The whole-body shipper was built, packed, and transported via airline cargo. Dry ice was ordered and delivered directly to the contracted funeral home.

At 14:25 hrs, Alcor's MRD received a report from the ME that a limited autopsy had been completed. The brain was not autopsied because of the results of the CT scan (see the Discussion section) and to respect the patient's wishes. The patient was officially released, and would be ready for pick up the following day. At 14:45 hrs, the whole-body shipper was received at the airline cargo department with an estimated time of arrival in New York at 05:30 hrs the following day.

T+10 days

At 05:39 hrs, DART personnel picked up the shipper at the New York cargo. At 08:04 hrs, the DART team arrived at the New York funeral home.

4. Patient Recovery

The patient arrived at the funeral home where the DART team was staged at 11:30 hrs. Thermocouples were placed in the patient's nares and at 11:42 hrs the initial nasopharyngeal temperature (NPT) readings were 6°C on both the left and the right nares. The patient was placed into the Zeigler case at 11:45 hrs and covered with 600 lbs. of dry ice.

5. Patient Transport to Alcor

T+11 days

The patient and shipper left the funeral home at 10:17 hrs. The shipper was left at airline cargo at 11:58 hrs (see the Discussion section). Both the left and right NPT were -66°C.

The flight arrived in Arizona at 19:35 hrs. There was a two-hour window before the patient was released from cargo. The patient was picked up by the Alcor cooldown team and transported to Alcor in the mobile recovery vehicle (MRV). The patient arrived at Alcor at 21:03 hrs and was still covered with dry ice. Both the right and left NPT were -72°C. Because the patient was still cooling to dry ice temperature, it was decided to wait until the next morning to start cryogenic cooldown.

6. Cooling to Liquid Nitrogen Temperature

T+12 days

Computer-controlled cryogenic cooldown was initiated at 12:08 hrs on T+12 days, plunging to -80°C and descending thereafter at -1°C/hour to liquid nitrogen temperature. On T+17 days at 17:25 hrs, an uneventful cooldown was terminated. On T+31 days at 13:11 hrs, the patient was transferred to long-term care at liquid nitrogen temperature.

7. Timeline and Time Summaries

Timeline

T-0	12:00	Estimated time of cardiac arrest
T+6	18:54	Notification of death/legal pronouncement
T+10	14:45	Start of dry ice cooling
T+11	11:58	Start transport of patient to Alcor
T+11	19:35	Arrival of patient at Alcor (-72°C)
T+12	12:08	Start cryogenic cooldown
T+17	17:25	End cryogenic cooldown
T+31	13:11	Transfer patient to long-term care at LN2

Time Summaries

Event Duration hr:min		days	time	
150:54	From: Till:	T-0 T+6	12:00 18:54	Estimated time of cardiac arrest Notification of death/legal pronouncement
242:45	From: Till:	T-0 T+10	12:00 14:45	Estimated time of cardiac arrest Start of dry ice cooling
271:35	From: Till:	T-0 T+11	12:00 19:35	Estimated time of cardiac arrest Arrival of patient at Alcor (-72°C)
16:33	From: Till:	T+11 T+12	19:35 12:08	Arrival of patient at Alcor (-72°C) Start cryogenic cooldown
288:08	From: Till:	T-0 T+12	12:00 12:08	Estimated time of cardiac arrest Start cryogenic cooldown

8. Discussion

Patient Assessment and Recovery

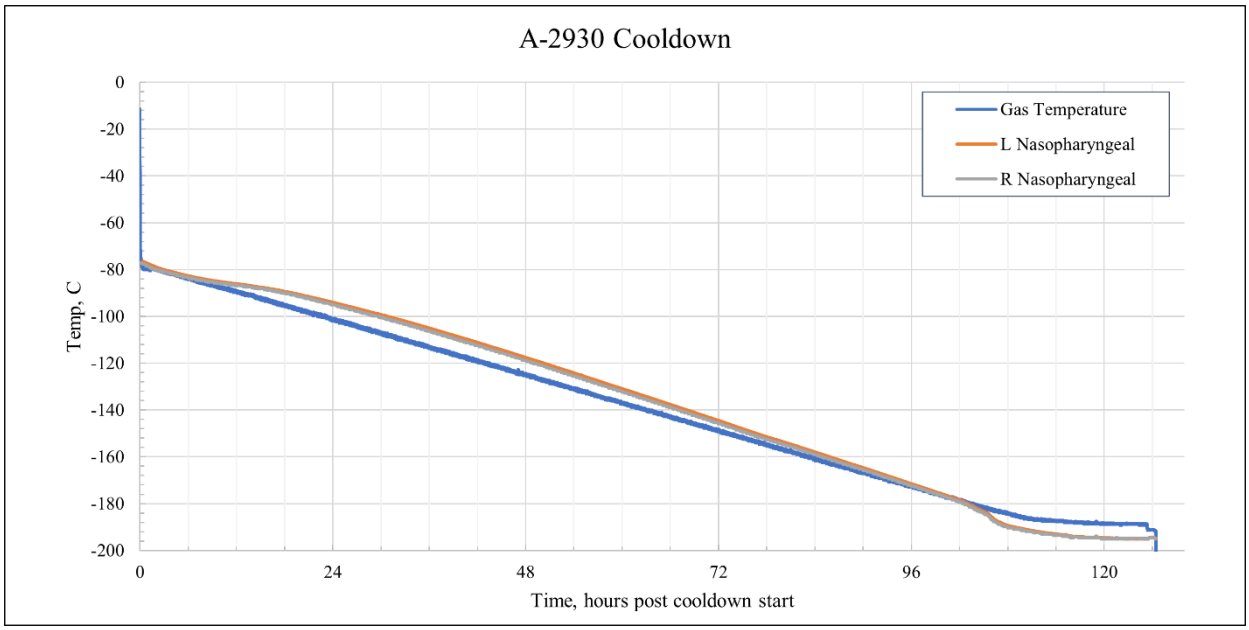
This patient's death certificate was finalized, and the cause of death was declared to be epilepsy second to the traumatic brain injury that occurred in a car accident from this patient's youth. What can be concluded from this is that the patient died from what was suspected, a seizure which was from the already present health concerns. Essentially nothing suspicious caused this death and it was of natural causes in the sense that nothing new occurred to cause this death.

Patient Transport to Alcor

Case reports are always written in Arizona time (MST). However, when decisions were being made about how to best protect the patient when left at the airline cargo department, it was 17:22 hrs in New York. Normal procedure is to wait until the patient has reached dry ice temperature (-80°C) or wait at least 24 hours, before leaving the patient for airline transport.

Because this patient had been packed in dry ice for over 24 hours, but the temperature reading was still only -71°C, the team discussed the situation with Alcor staff members and were given assurance that as long as the dry ice on and around the patient was at capacity, the patient should continue to cool down during the flight with no problems, especially since it was a direct flight with no stop overs. The shipper was left at airline cargo at 11:58 hrs. The temperatures were right NPT -72°C and left NPT -71°C.

9. Cryogenic Cooldown Graph



10. CT Scans

Cryoprotectant Distribution (Post-cryopreservation CT scan)

Because this was a straight-freeze procedure, no post-cryopreservation CT scans were obtained.