

Alcor A-1051

Case Report



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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-1051 was a 69-year-old member with neuro cryopreservation arrangements. This was a postmortem notification and, therefore, a cryopreservation without cryoprotection (a straight-freeze procedure). No invasive autopsy was performed. The member was pronounced legally deceased in Oregon at 17:13 hrs on T+7 days in July of 2024.

After recovery, the patient was transported via airline to Alcor for cryogenic cooldown. The patient arrived at Alcor at 19:48 hrs on T+11 days. The cryogenic cooldown was initiated on T+11 days at 19:51 hrs and terminated on T+17 days at 11:13 hrs. The patient was transferred to long-term care at liquid nitrogen temperature at 12:06 hrs on T+37 hrs.

2. Member Assessment

This member was not on the Alcor Watchlist, but Alcor's Director of Membership Services had spoken to the member 2 to 3 weeks prior to the notification of the member's death. The member had stated at that time that there were no health problems.

T+7 days

The member had not been heard from in a few days, so the landlord ordered a welfare check to the apartment. The police found the patient severely decomposed and handed the patient over to the custody of the medical examiner (ME). The ME estimated cardiac arrest to have been at least 7 days prior to the patient being found. Since there is no estimate of the time, for this report the estimated time of cardiac arrest will be at 12:00 hrs on T-0.

T+8 days

The landlord notified Alcor of the situation at 17:18 hours. The Alcor COO attempted to reach the medical examiner's office; however, they were already closed for the day. She then attempted to reach the funeral home (to which the landlord believed the patient had been released). However, they did not have anyone by that name in their system. The COO then notified the MRD of the situation at 18:34 hrs.

T+9 days

The MRD also tried to reach the ME, but they did not answer, so a voicemail was left explaining the matter. The MRD called again the next morning, but they were closed for the holiday (Fourth of July).

T+10 days

The MRD called the ME at 07:30 hrs and left another voicemail requesting a call back as soon as possible. At 09:18 hrs, the ME returned the call and relayed the following information:

The patient was severely decomposed, so cardiac arrest was now estimated to be 1-2 weeks prior to being found. The cause of death was still to be determined pending the results of a toxicology report as there were drugs and paraphernalia found in the apartment. No invasive autopsy would be performed.

3. Deployment

The MRD discussed the findings with the Alcor Deployment Committee, and it was agreed to deploy for patient recovery as soon as possible. At 10:15 hrs, two local Deployment and Recovery Team (DART) members were deployed.

These team members immediately traveled to Alcor to gather the equipment kits for deployment. Due to flight limitations, the earliest flight to the patient's location was at 16:45 hrs with a connection that would place them there at 22:30 hrs (see the Discussion section). The kits were checked as baggage to ensure they would arrive with the team. The team arrived at their destination at 22:30 hrs. They checked into a nearby hotel to await the morning procedure.

4. Patient Recovery

T+11 days

The DART team arrived at the funeral home at 08:00 hrs, which was the earliest the funeral director was willing to meet them and surrounded the patient's cephalon with 100 lbs. of dry ice to begin the cooling process (see the Discussion section). No temperature data was collected on this case due to the decomposition of the member (see the Discussion section).

After the patient had solidified sufficiently, the cephalic isolation was started at 10:30 hrs and was completed at 10:40 hrs. The patient was then placed in the neuro shipper at 10:42 hrs with an additional 30 lbs. of dry ice.

5. Patient Transport to Alcor

The patient departed the funeral home at 11:30 hrs and was checked in at air cargo at 13:51 hrs. The patient arrived in Phoenix, AZ at 17:15 hrs and arrived at Alcor at 19:48 hrs.

6. Cooling to Liquid Nitrogen Temperature

Computer-controlled cryogenic cooldown was initiated at 19:51 hrs on T+11 days, plunging to -80°C and descending thereafter at -1°C/hour to liquid nitrogen temperature.

During the patient cooldown, the primary LN2 injection valve became fractionally wedged open by debris or ice on the sealing surface. For a period, the chamber temperature dropped until the interlock solenoid engaged to halt the leak. Upon discovering this fault, the team cleared the leaky solenoid by rapidly actuating the valves to dislodge the debris. The cooldown then continued uneventfully until completion.

On T+17 day at 11:13 hrs, cryogenic cooldown was terminated. On T+37, 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+7	17:13	Time of pronouncement of legal death
T+8	17:18	Notification of legal death
T+11	08:15	Start of dry ice cooling
T+11	13:51	Patient dropped off at air cargo
T+11	19:48	Arrival of patient at Alcor
T+11	19:51	Start of patient cryogenic cooldown from -79°C to -196°C
T+17	11:13	End of cooldown to LN2
T+37	12:06	Transfer of patient to long-term care in LN2

Time Summaries

Event Duration hr:min		days	time	
173:13	From: Till:	T-0 T+7	12:00 17:13	Estimated time of cardiac arrest Time of pronouncement of legal death
260:15	From: Till:	T-0 T+11	12:00 08:15	Estimated time of cardiac arrest Start of dry ice cooling
271:48	From: Till:	T-0 T+11	12:00 19:48	Estimated time of cardiac arrest Arrival of patient at Alcor
00:03	From: Till:	T+11 T+11	19:48 19:51	Arrival of patient at Alcor Start of patient cryogenic cooldown from -79°C to -196°C
271:51	From: Till:	T-0 T+11	12:00 19:51	Estimated time of cardiac arrest Start of patient cryogenic cooldown from -79°C to -196°C

8. Discussion

Patient Recovery

The team arrived in Oregon at 22:30 hrs. Other flights into a larger airport were available with a two-hour drive to the patient's location that would have gotten the team there a couple hours sooner. However, the funeral home was not willing to allow the DART team into the facility after 17:00 hrs. Therefore, the flight without the two-hour drive was booked.

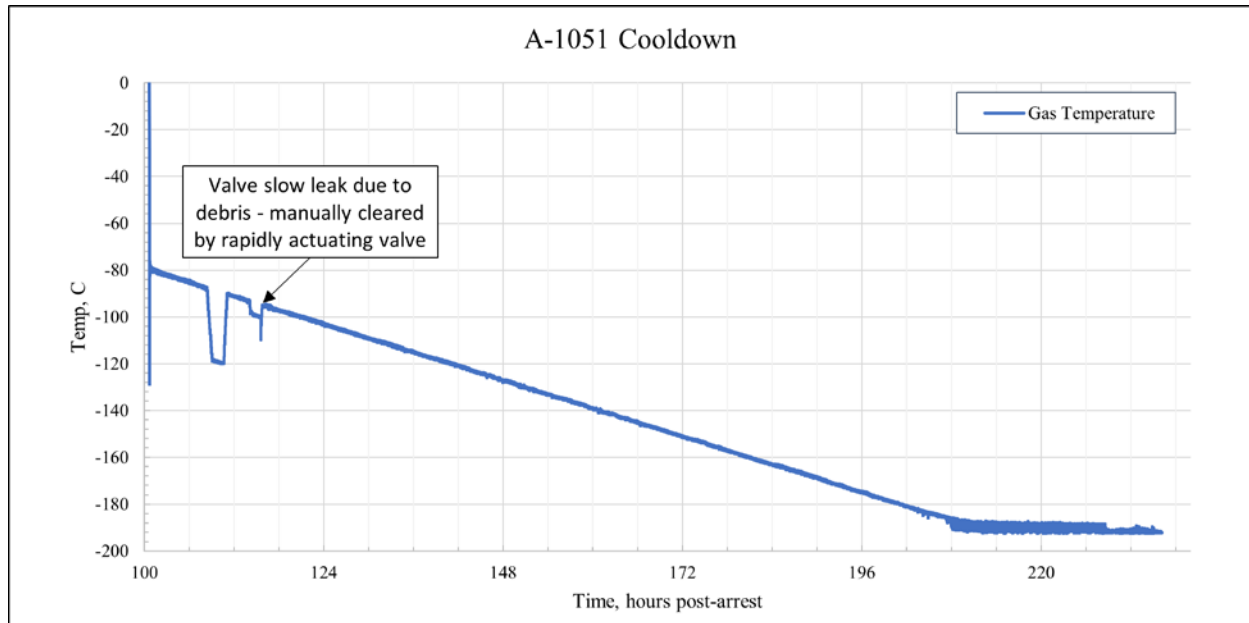
The patient experienced warm ischemia for an unknown time until found. The medical examiner (ME) mentioned the patient was found in an apartment where there was either no air conditioning or the air conditioning was turned off. The patient was kept between -2°C and 4°C both in the ME morgue and also in the funeral home. Neither were willing to place the patient on either water ice or dry ice when requested, even if it could be delivered to them.

This member was found in a state of severe decomposition. Maggots were present in every orifice. The skin was so decomposed it would slough off when touched. Because of this, no temperature probes were able to be placed, in fear it would severely damage the patient or expose the DART team members to biological hazard.

Cryogenic Cooldown

During the patient cooldown, the primary LN2 injection valve became fractionally wedged open by debris or ice on the sealing surface. For a period, the chamber temperature dropped until the interlock solenoid engaged to halt the leak. Upon discovering this fault, the team cleared the leaky solenoid by rapidly actuating the valves to dislodge the debris. The cooldown then continued uneventfully until completion.

9. Cryogenic Cooldown Graph



10. CT Scans

Cryoprotectant Distribution (Post-cryopreservation CT scan)

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