Alcor A-1468
Case Report

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Alcor A-1468 Case Report Contents:

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 (if more than a few moments before pronouncement) or pronouncement of legal death, T-X represents occurrences on dates before T-0, and T+X represents occurrences on dates following T-0.

A-1468 was a 56-year-old member with neuro cryopreservation arrangements. This patient experienced an unattended cardiac arrest in California during the Covid-19 pandemic and an autopsy was therefore required. The patient was pronounced legally deceased at 12:53 hrs in May of 2020 on T-0 days after the police performed a welfare check.

The cause of legal death per the autopsy report was hypertensive and atherosclerotic cardiovascular disease. The patient's brain segments were released to Alcor by the Medical Examiner on T+2 days and were placed on dry ice at 12:12 hrs. The patient was then flown to Alcor, and cryogenic cooldown was initiated at 19:52 hrs that same day. An uneventful cooldown was terminated at 11:35 hrs on T+3 days, and the patient was moved to long-term maintenance at liquid nitrogen temperature at 14:49 hrs.

2. Patient Assessment and Response

T-48 days

Alcor was notified by a friend and Alcor member that the member was recovering from what was possibly an undiagnosed case of COVID-19 virus because he had a cough, which was one of the symptoms. Alcor's Medical Response Director (MRD) spoke with the member and placed the member on the Watch List. The member was removed from the Watch List ten days later after another phone conversation where the member reported feeling well and had no further symptoms.

T-5 days

The member called one of his family members and mentioned that the cough had returned. This was the last known contact with the member.

T-4 days

The family member followed up and sent text messages to the member, from which no responses were received. The time of cardiac arrest for this case is, estimated to be the day after the last contact with the member.

T-0 days

The member's family called the police and requested a welfare check as they had still not heard from the member. When the police arrived, they pronounced the member legally deceased at 12:53 hrs per the death certificate. The Medical Examiner (ME) did not estimate the time of cardiac arrest when the patient was found, and none was given in either the death certificate or the autopsy report.

T+1 days

The family was stressed by the unexpected death and did not think to notify Alcor immediately. Alcor received notification about the patient's death via their medical answering service at 08:49 hrs. Over the next hour, Alcor deployed one of their strategic partners, International Cryomedicine Experts (ICE), who dispatched an experienced paramedic to contact the ME who was in possession of the patient and to get the patient on dry ice as soon as possible. The Alcor Deployment Committee was convened to discuss the case at 09:42 hrs. The patient's business partner arrived at the office of the ME at 10:26 hrs to negotiate the avoidance of an autopsy.

T+2 days

Alcor had legal counsel contact the ME to prevent the autopsy, without success (see the Discussion section). A full autopsy was performed. Alcor's Readiness Coordinator (RC) had contracted a funeral home near the patient that was on board with the proposed procedure and was already working on the patient's release. The ME's office was waiting on a fingerprint ID.

The funeral director picked up the patient from the ME's office at 09:58 hrs. The ICE paramedic picked up 40 lbs. of pellet dry ice on the way to the funeral home. The patient arrived at the funeral home at 10:51 hrs. The funeral director and the ICE paramedic began the procedure of removing abdominal sutures from the patient at 11:31 hrs while Alcor's MRD observed the procedure via Face Time on his cell phone.

A black plastic bag was removed from the patient's abdomen at 11:48 hrs and approximately 20 brain segments and pieces were removed, placed in a clean black plastic bag, and placed in the dry ice shipper at 12:12 hrs. The brain segments were all placed directly on approximately 20 lbs. of dry ice that had already been placed in the shipper. The brain segments were arranged so that every segment was touching dry ice. The balance of approximately 20 lbs. of dry ice was then placed on top of the brain segments.

3. Transport

The brain segments were brought to dry ice temperature almost immediately because of their very small size and the fact that they were all in direct contact (through the bag) with the dry ice. There was no need to wait the standard 24 hours before shipping as would be done with a full cephalon. The ICE paramedic went directly to the airport with the brain segments and flew back to Alcor with them. He landed at Phoenix Sky Harbor at 18:54 hrs on T+2 days and was met by Alcor personnel who confirmed the dry ice level to be more than adequate upon arrival.

4. Cooling to Liquid Nitrogen Temperature

A computer program was used to initiate cryogenic cooldown at 19:52 hrs on T+2 days, plunging to -80°C and descending thereafter at -1°C/hour to LN2 temperature. On T+3 days, an uneventful cooldown was terminated at 11:35 hrs and the brain segments were transferred to long-term maintenance at liquid nitrogen temperature at 14:49 hrs.

5. Timeline and Time Summaries

Timeline

T-4 days Estimated time of cardiac arrest

T-0 days

12:53 Pronouncement of legal death (per death certificate)

T+1 days

08:49 Alcor notified of legal death

T+2 days

12:12 Start of dry ice cooling after shipper approved by Alcor
12:12 Dry ice temperature achieved (brain segments all in contact with dry ice)
19:41 Arrival of the patient at Alcor
19:52 Start of patient cryogenic cooldown from -80°C to -196°C

T+3 days

11:35 Termination of cooldown to LN_2
14:49 Patient transferred to long-term storage

Time Summaries

Event duration
hrs: mins

96:00 From estimated time of cardiac arrest to time of pronouncement:
12:53 hrs on T-4 to 12:53 hrs on T+2 days

150:48 From estimated time of cardiac arrest to patient arrival at Alcor:
12:53 hrs on T-4 to 19:41 hrs on T+2 days

00:11 From arrival at Alcor to the start of cooldown: 19:41 hrs to 19:52 hrs

150:59 From estimated time of cardiac arrest to start of cooldown:
12:53 hrs on T-4 to 19:52 hrs on T+2 days

6. Discussion

When Alcor learned the medical examiner (ME) intended to perform an autopsy, Alcor's internal communication system was set up and various team members began to discuss how an autopsy might be prevented. Information was immediately sent to the ME containing the member's Authorization for Anatomical Donation, which clearly stated, "…*such delivery shall take place immediately after my legal death, without embalming or autopsy*".

Alcor had legal counsel contact the ME to request that no autopsy be performed. The ME would not stop the autopsy and informed Alcor that 12 other autopsies were scheduled prior to this patient. Legal counsel then planned to have a court intervene and stop the autopsy. Unfortunately, it was learned that the ME had moved the patient to the top of the autopsy line, making it impossible for any court to intervene.

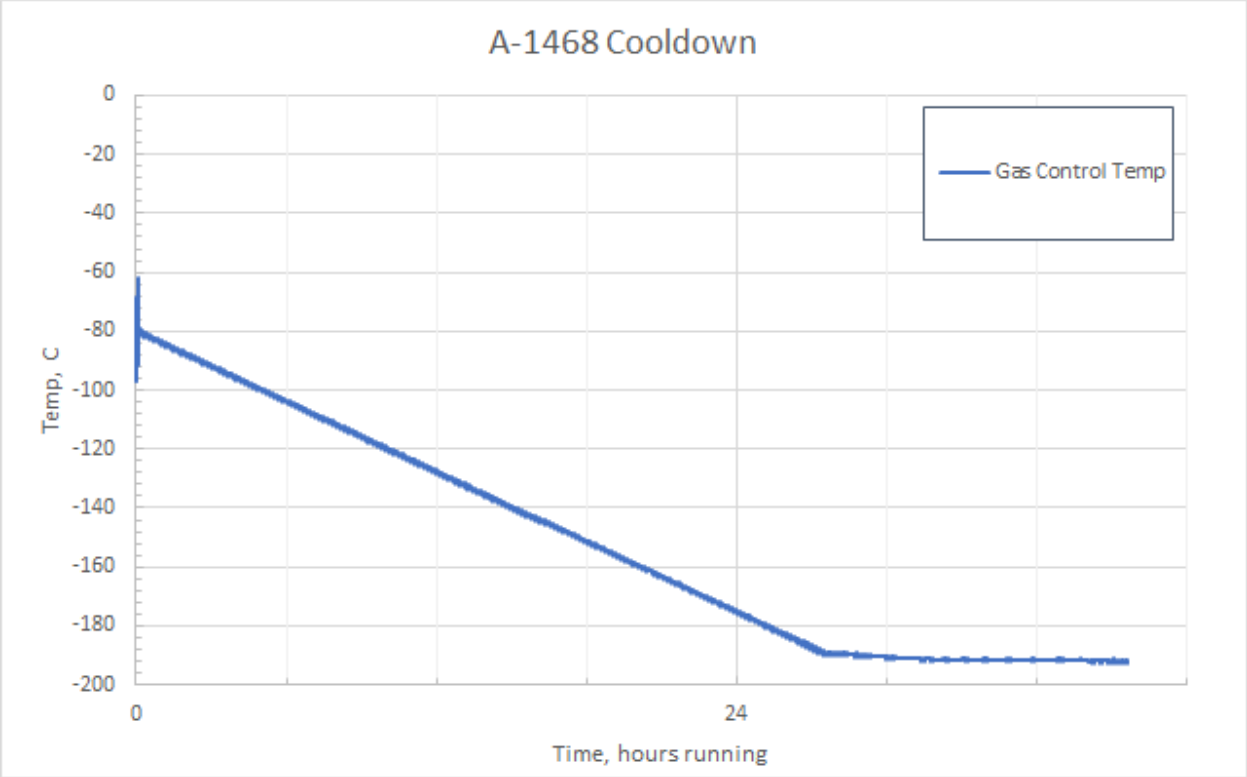
Concurrently, other attempts to prevent autopsy were made. The paramedic from ICE gave a letter to the ME that had been used on past cases which made the argument for why a member should not be autopsied based on the extreme damage that would be done and the negative effect it would have on the member's potential future revival. That letter had twice successfully influenced a coroner or ME not to perform an autopsy.

Additionally, a friend and business partner of the patient, who was an Alcor member and a past MRD, volunteered to visit the ME's office and personally plead his case. The patient's family also called the ME to cite the patient's religious objection to autopsy; he was told that the autopsy had already been performed. Despite all efforts, the autopsy could not be prevented.

The cause of legal death per the autopsy report was hypertensive and atherosclerotic cardiovascular disease and was therefore considered to be natural causes. This patient was originally thought to be an undiagnosed Covid-19 patient, but the autopsy revealed that he was not. The test performed was believed to have been an active agent test. It should be noted, however, that the ME had tested for active coronavirus with a nasal swab, and it was negative. The ME had not performed an antibody test for prior infection. The patient's business partner informed Alcor that one of the symptoms the patient experienced while very sick was the loss of taste and smell which were associated with coronavirus infection. The ME did not speak to the business partner before making his determination about cause of legal death.

This case took place before the Alcor Check-In Service which could have allowed the member to keep in touch with Alcor and potentially have decreased the number of days and hours between the estimated time of cardiac arrest and time of pronouncement of legal death. This case was part of the reason the Alcor Check-In Service was initiated.

7. Graphs


A-1468 Cooldown
0
-20
-40
-60
-80
-100
-120
-140
-160
-180
-200
Temp, C
0
24
Time, hours running
Gas Control Temp