Alcor A-1002

Case Report

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Alcor A-1002 Case Report Contents:

1. Member's Background

Frederick Rockwell Chamberlain III (A-1002) was born November 21st, 1935 in Fort Monroe, Virginia. Considered one of the pioneers in the science of cryonics, in 1972 Fred and his wife Linda founded the Alcor Society for Solid State Hypothermia, better known today as the Alcor Life Extension Foundation. Over the years, both were intermittently involved with Alcor along with numerous other life extension based endeavors.

Fred was diagnosed with prostate cancer in 1993. Although the progression of Fred's cancer slowly developed over 19 years, it was closely monitored as Fred and Linda planned to return to Scottsdale at some point to receive the best possible cryopreservation. In early March of 2012, Fred's health took a dramatic turn for the worse and it appeared that the window of opportunity to relocate to Scottsdale had been missed. After a medication change, causing a brief respite in decline, Alcor helped facilitate Fred's move to Scottsdale and placed him into care at a local hospice facility.

After six days of standby, Fred's clinical death occurred on March 22nd, 2012. He is survived by his wife, Linda, and a son and daughter. Fred's father, Frederick Chamberlain II was the first Alcor member to be cryopreserved in 1976 and Frederick Chamberlain III was the 111th member of Alcor to be cryopreserved.

2. Personnel

Standby, Stabilization and Transport: Aaron Drake, Medical Response Director; Steve Graber, Readiness/Technical Coordinator; and Sandra Russell of Critical Care Research. They were supported by Max More, Alcor CEO; and Steve Harris, M.D., Chief Medical Advisor.

Personnel at Alcor's surgery suite included José Kanshepolsky, M.D., Surgeon; Aaron Drake, Surgical Assistant; Steve Graber, Cryoprotection Perfusionist; Hugh Hixon, Cryoprotection Perfusionist and Scribe; Max More, Refractometry; R. Michael Perry, Ph.D., Cooldown Coordinator. Surgical support staff: Sandra Russell, Bruce Cohen and Jerry Searcy. Observers: Tom Wolvos, M.D. and Kara Villareal, M.D..

3. Pre-Deployment

Fred was first diagnosed with cancer in 1993 when a routine blood test revealed elevated prostate specific antigen (PSA) levels. A biopsy was taken which confirmed the presence of prostate cancer. A radical prostatectomy was recommended but Fred declined and instead decided to "watch and wait" while implementing holistic support methodologies to prolong life to the greatest extent possible.

Fred cancelled his Alcor membership in May of 2002 for various reasons and joined the Cryonics Institute (CI) as a safety net in the event of an unexpected death. Many years passed without incident until 2009 when Fred elected to have two procedures performed to reduce the size and effects of the cancer. Now living in Melbourne, Florida, Fred and Linda discussed their intentions of reinstating their membership with Alcor when Fred's health began to deteriorate. In March of 2011, they switched their membership once again from CI back to Alcor.

A year later, in March of 2012, Fred's condition suddenly deteriorated. He was unable to get out of bed without assistance, his speech was difficult to understand and his thought process lacked clarity. The internist caring for Fred determined that he was very sick and made a referral to hospice-at-home. He also advised that air travel to Scottsdale was probably not achievable, given his current condition. Everyone was disappointed in this news, nonetheless plans were being developed to stage a standby at their home in Florida.

When a change in Fred's medication occurred, there was a significant improvement in his ability to ambulate, talk and think. In discussing this change with Alcor, the decision was made to attempt to get Fred on a plane to Phoenix so he could be placed in a hospice facility in Scottsdale. On March 14th, Aaron Drake - Alcor's Medical Director, flew to Melbourne, Florida to help facilitate the move. With the assistance of Loraine Rhodes, team leader for the Terasem Cryonics Response Team of Satellite Beach Florida, Fred and Linda were packed and driven to the airport in Orlando for a direct flight to Phoenix. Aaron provided the support needed to ensure the airlines would allow a medically frail individual to travel on a commercial flight.

After landing at Sky Harbor airport in Phoenix, Fred was taken to a local hospice facility – one that has a long tradition of accepting Alcor members. Alcor had pre-coordinated with the hospice to have Fred accepted into their facility without the requirement for their normal evaluation process.

Friends, family and former employees visited to share stories of Alcor's early days and to see Fred once again. Despite the reunion-like atmosphere, Fred spoke of his increasing level of pain as a result of his cancer and was determined to make his suffering time minimal. Fred decided that he would discontinue all intake of food or fluids. He asked that the nurses keep him comfortable throughout this process. The hospice physician evaluated Fred on Friday and indicated he would have a better idea of how much time he had remaining over the next day or two. Based upon Fred's decision not to eat or drink, it was expected that he would experience a steady decline in health over the next five to seven days.

4. Deployment

The next morning, Saturday March 17th, the nurses were concerned that Fred's health was declining faster than expected and strongly suggested that it was time to start the standby. Aaron and Steve Graber, Alcor's Readiness and Technical Coordinator, met at Alcor to take the response vehicle over to the hospice. Six coolers filled with ice were staged at the facility with towels placed under them as a precaution against the possibility of any leakage. Sandra Russell from Critical Care Research in California was contacted and requested to help out on the standby. Alcor's rescue vehicle was parked just outside the entrance of the facility to allow for fast egress when needed. Reservations were secured at a motel located only four blocks away so one team member could get some quality sleep to stay fresh, once shift rotations began.

A combination pulse oximeter and heart rate monitor was attached to Fred with an audible alarm that would sound in the event there was any dramatic change in his condition. Either his wife Linda, who had been on numerous standbys over the years for Alcor, or another team member was in his room monitoring him around the clock. The portable ice bath and major stabilization supplies were also prepositioned in his room.

Sandra's arrival the next morning on Sunday, allowed the team to begin rotations so two people could remain at the facility full time while one person stayed at the motel to rest. Each team member would be on duty for approximately 16 hours and would rest for 8 hours. This rotation continued over the next four days as Fred's health gradually declined.

Late at night on Tuesday, March 20th, Fred had increasingly longer periods of apnea that extended to almost a minute in length. The nurses were sure his clinical death was near and so all team members stayed at the facility and prepared the medications in anticipation. This breathing pattern continued throughout the night and finally resolved in the morning. The team went back on rotation to recover from the extended hours of remaining awake.

On Wednesday evening, March 21st, Fred began to exhibit the same breathing pattern as the previous night, however the effort to breathe appeared to be much more labored. The medications that lose their efficacy within 12 hours were redrawn and at the ready. Around midnight, the nurses were certain his clinical death would occur sometime in the following hour. Fred's personal items were packed and any extra supplies were packed away in preparation for a quick departure. A base layer of ice and water were placed in to the portable ice bath and the backboard of the Lucas 2 cardiopulmonary support device was positioned on top of the ice.

At 12:45 am, Thursday, March 22nd, Fred's heart rate monitor could no longer detect a pulse but as he had jugular venous distention, you could still easily visualize jugular venous pulsation. The nurse was called into the room in anticipation that there were only minutes remaining. While

the nurse watched Fred, she removed his indwelling urinary catheter. At 12:49, Fred took his last breath and the nurse made the pronouncement at 12:50 am, Thursday March 22nd.

5. Field Stabilization, Cooling and Transport

Immediately after official pronouncement, team members established an intraosseous infusion line with a bone injection gun in the patient's left tibial plateau. The low volume medications: Propofol, Heparin, Streptokinase, Ketorolac, and Gentamicin were administered followed by a 100 ml bolus of Citrate Dextrose to flush. Simultaneously, two thermocouple probes were placed bilaterally in the patient's nasopharynx and attached to a DuaLogR for temperature recording. The thermocouples were secured in place with a surgical stapler and swimmer's ear wax was used to keep water and ice from entering the patient's nose.

The patient was rolled onto his right side and a rectal occlusion device was inserted. A portable transport sheet was tucked under his body to provide support while being moved to the ice bath. The patient was lifted off the bed and moved onto the layer of ice in the portable ice bath. His back was positioned directly over the Lucas 2 backboard. The top of the Lucas 2 was inserted between his arms and torso and aligned so the ACD suction cup was centered over his sternum. The battery powered unit was turned on and compressions/decompressions were started.

All of the remaining ice in the room was added and his body was completely covered, except for his chest and face. An attempt was made to establish an advanced airway with #4 King esophageal airway however something was preventing the lumen from being advanced. Either ice accidently entered the oropharynx or an anatomical anomaly blocked the opening to the esophagus preventing the insertion of even the small diameter gastric tube used for Maalox.

A second bone injection gun was used to establish an additional intraosseous access site specifically for the Baxa infusion pump to administer epinephrine and vasopressin. Once patency was verified, an initial bolus of the combined medicines was pushed to promote efficacy and then the automated pump was started. Both Acetylsalicylic acid and SMT were also administered through the original intraosseous port.

The hospice nurses were notified that the team was ready to depart the patient's room so they could close the doors of any other rooms along the hallway. The patient was covered with a privacy drape and the Lucas 2 was turned off, per the hospice facility's requirements, while the nurse escorted us to the secured exit door. After entering the exit code, the door opened and we left the building. The Lucas 2 was turned back on once outside, compressions having been interrupted for 61 seconds.

Upon arriving at Alcor's rescue vehicle, the portable ice bath was loaded onto the hydraulic lift gate and loaded into the mobile medical room before being locked and secured into place. A five gallon container of water was poured into the ice bath to increase the effectiveness of the patient cooling. The Squid was placed over the patient to begin circulating the chilled ice water.

A second attempt was made at establishing an advanced airway with an endotracheal tube without success. Although the mobile medical room was lighted, it was dark outside which did not add any ambient light and the airway obstruction could not be visualized using a non-lighted laryngoscope.

The decision to remain in the parking lot to administer the remaining medications, as opposed to leaving for Alcor immediately, was based upon the knowledge that surgery would have to wait until core body temperature reached the target of 20º C or colder. Since the facility is less than 10 minutes driving time to Alcor, the patient would arrive before reaching this temperature objective under either scenario. By staying, this allowed an extra set of hands to continue pushing medications rather than having to drive the vehicle. The remaining medications of Ni-Ky, 4-Hydroxy-Tempo, THAM, Hetastarch, Vital Oxy and Mannitol were administered over the next 20 minutes.

The remaining supplies were loaded into the vehicle and everything was secured prior to transport. A call was made to the Alcor surgical team to inform them we were departing the hospice. Due to the light traffic at that time of night, the drive took five minutes. The nasopharyngeal temperature was 21.4º C upon arrival.

6. Surgery and Perfusion

The patient was moved onto the surgery room with the Lucas 2 still performing compressions. Within 20 minutes, compressions were stopped and the patient was lifted out of the ice. Dr. José Kanshepolsky, assisted by Aaron Drake, made two vertical incisions with a scalpel to expose the skull. The scalp was parted with Weitlanders and two burr holes were made using a Codman craniotome perforator. The exposed dura mater of the brain was cut through using a #10 scalpel blade and the remainder was cleaned up with a Kerrison rangeur. A thermocouple probe was inserted into the right burr hole and secured to the scalp with 2-0 Silk.

Aaron aseptically prepped the region to be incised and then the patient's face and chest were draped and secured with Backhaus towel clamps, leaving only the neck exposed. Dr. Kanshepolsky then proceeded make a skin incision with a #10 scalpel blade along the anterior border of the left sternomastoid and divided the loose areolar tissue through dissection using a Metzenbaum and Debakey forceps. The surgical field was held open with two Army Navy retractors. Once the left common artery was identified and isolated with a right angle Mixter

forcep, a silk tourniquet and a Debakey bulldog clamp were used to maintain vascular control. The same procedure was repeated for the right common carotid artery. Using a #11 scalpel blade, the arteries were then severed distal to the clamps.

Using scalpels, the remaining tissue around the neck was severed, leaving only the spinal column intact. The cephalon was separated with an osteotome and mallet before being moved from the operating table to the neuro box and mounted in the head ring. Both carotid arteries were cannulated with red robinson catheters and secured in place with a surgical basket stitch. After an initial flow of perfusate, the vertebral arteries were identified with rat tooth forceps and secured with Diethrich micro bulldog clamps. A crack phone element was inserted into each of the burr holes and secured with 2-0 Silk.

The washout and subsequent cryoprotection began, monitored by Hugh Hixon and Steve Graber. Cryoprotection terminated with [M22] > 50.3 Brix for over 30 min. Skin evenly darkened. Eyeballs shrank to about 1/2 volume; brain shrank to less than 1/2 volume. Flow equal for both carotids. Pressure held 100 mmHg to 130 mmHg. Used: B1, 20 liters, M22x1.25, ~9 liters

7. Timelines

Stabilization

An approximate timeline of events compiled from multiple sources is below.
Times are Mountain Standard Time (MST)

March 22nd, 2012

Time /	Post arrest	
00:50	(0:00)	Patient pronounced
		Nurse grants permission for Alcor to begin procedures
		Intraosseous access gained through left tibial plateau
		Thermocouple probes placed and secured in nasopharnyx
00:51	(0:01)	200 mg Propofol administered
		100,000 IU Heparin administered
		250,000 IU Streptokinase administered
		DuaLogR data recording began
00:52	(0:02)	80 mg Gentamicin administered
		15 mg Ketorolac administered
		100 ml citrate dextrose bolus given to flush medications
00:53	(0:03)	Rectal occlusion device inserted and secured
00:54	(0:04)	Patient rolled onto megamover patient transport sheet

00:55 (0:05) Patient moved to portable ice bath
00:56 (0:06) Lucas 2 ACD cardiopulmonary device aligned over chest and started
00:57 (0:07) Additional ice added to completely cover patient
1st attempt at establishing an airway with King esophageal airway
01:00 (0:10) Second intraosseous access site established in right tibial plateau
300 mg Acetylsalicyclic Acid in 10 ml Tham administered
01:01 (0:11) Initial bolus of 1 mg Epinephrine and 20 IU Vasopressin administered
Baxa infusion pump started with 29 mg Epinephrine and 180 IU Vasopressin
01:02 (0:12) 400 mg SMT (S-methyl-isothiourea) in 50ml Citrate-Dextrose administered
01:03 (0:13) Patient covered with privacy drape
Nurse notified we are ready to depart patient's room
01:04 (0:14) Lucas 2 shut-off while in the facility hallway – 61 seconds
01:05 (0:15) Lucas 2 turned back on once outside
01:06 (0:16) Portable ice bath loaded onto rear lift
01:09 (0:19) Moved into back of rescue vehicle
01:10 (0:20) 5 gallons of water added to PIB
01:13 (0:23) Squid placed in ice bath to begin circulating ice water
01:16 (0:26) 2nd attempt at establishing an airway with endotracheal tube *
2.0 g Niacinamide-Kynurenine sulfate in 100 ml Citrate-Dextrose administered
01:20 (0:30) 4-Hydroxy-Tempo flakes in 50 ml Citrate-Dextrose administered
01:21 (0:31) 100 ml Tham (Tris (hydroxymethyl) aminomethane) administered
01:23 (0:33) 250 ml Hetastarch administered
01:28 (0:38) More ice added
01:32 (0:42) 70 ml Vital Oxy administered
01:38 (0:48) 500 ml 20% Mannitol administered
01:45 (0:55) Remaining items loaded and vehicle prepped for departure
01:50 (1:00) Departed for Alcor
*Note: no Maalox was administered due to problem with establishing gastric access.

Surgical

Times are Arizona Time (MST)
T-1 = time of day
T-2 = hours post pronouncement
T-3 = hours post arrival to Alcor

T-1	T-2	T-3	Action
0:50	0.00		Patient pronounced
1:11	0.35		Filled perfusion circuit, chiller on
1:15	0.42		On circulation
1:18	0.47		Report: "being loaded"

1:26	0.60		Started video
1:27	0.62		Started data collection program
1:40	0.83		M22x1.25 looked cloudy - there was frost on the jug
1:43	0.88		Aaron calls; departing hospice facility
1:55	1.08	0.00	Arrived - Nasal 21.4º C
2:01	1.18	0.10	Added EG to chiller; arterial temp had been high
2:12	1.37	0.28	Patient on table several minutes
2:17	1.45	0.37	Completed burr holes
2:21	1.52	0.43	Pump back pressure ~7.5 psi
2:28	1.63	0.55	Pharyngeal probe 16º C
2:31	1.68	0.60	Both crackphone elements positioned
2:44	1.90	0.82	Steve retrieved more 0.2u filters just in case (re 2:21 comment)
2:46	1.93	0.85	Suction set up
2:57	2.12	1.03	Checked mixing reservoir with refractometers 10.35, 9.2 (B1)
3:08	2.30	1.22	Pharyngeal temp 17º C
3:10	2.33	1.25	Started washout - 44 mm Hg
3:27	2.62	1.53	Burr hole temp 11º C - effluent running fairly clear
3:29	2.65	1.57	Closed circuit, on ramp
3:35	2.75	1.67	Closed box, started cooling
3:39	2.82	1.73	Chiller about -3º C
3:40	2.83	1.75	Temps: L Jug = 1.5º C, R. Jug = 5.5º C, brain surface = 7.6º C, pharyngeal =10.9º C
3:55	3.08	2.00	Volumes: mix res = 1.46 l, conc. = 8.6 l, dump - 0.6 l, brain retraction L=10mm, R=5mm
4:07	3.28	2.20	Speed 37, 112 mm Hg
4:11	3.35	2.27	Mix res = 1.68 l
4:16	3.43	2.35	Differential pressure test: initial pressure 52.4 mmHg; L= 79.2 mmHg, R=75.1 mmHg, about the same resistance into both carotids
4:22	3.53	2.45	Mix res = 1.8 l - drained to dump
4:25	3.58	2.50	Mix res = 1.0 l -closed dump
4:36	3.77	2.68	Brain retraction L=1.5 cm, R=2.0 cm
4:42	3.87	2.78	Skin coloring changing evenly, corneas collapsed
5:14	4.40	3.32	Stopped ramp; mix res = 1.18 l, conc = 6.95 l, dump = 2.21 l
5:17	4.45	3.37	Chiller from 0º C to -6º C, LN_2 injection switched to -3º C
5:22	4.53	3.45	Hugh; raised chiller temp to -5º C
5:22	4.53	3.45	Steve lowered pump speed due to pressure spike ~= 150 mmHg
5:23	4.55	3.47	Pressure = 107 mmHg
5:47	4.95	3.87	Steve opened dump line - mix res = 1.2 l
5:48	4.97	3.88	Steve closed dump, mix res = 0.9 l
5:48	4.97	3.88	Steve initiated ramp full speed

6:18	5.47	4.38	Hugh opened dump line; mix res = 1.92 l
6:21	5.52	4.43	Hugh noted skin tone medium to dark brown
6:49	5.98	4.90	Loss of M22 conc. from siphoning to drain - Added 3 liters M22x1.25
6:53	6.05	4.97	Temp channels CH05 and CH04 (jugulars) TCs flipped, yet CH05 remained abnormally high - apparently something wrong in DAQ box
7:03	6.22	5.13	Both jugulars over 55 Brix - ramp stopped
7:06	6.27	5.18	Both eyes shrank to ~1/2 volume, skin very even, very dark
7:23	6.55	5.47	Steve/Hugh discussed possible mis-wiring of AFAB refractometers; #1=L Jug by screen label, appeared to be logging #3 arterial data and vice versa
7:28	6.63	5.55	Steve increased pump speed due to slight drop in pressure (went from 132 mmHg to 119 mmHg)
8:09	7.32	6.23	Started cooldown

On April 25th 2012, A-1002 was moved to a neuro container for permanent storage.

8. Discussions and Recommendations

Problem: It was noted that the suction cup of the ACD Lucas 2 was not maintaining a seal on the patient's chest. This has not previously been a problem so it may have been an issue due to the emaciated condition of the patient.

Solution: We will test a variety of gels under wet conditions to determine if we can improve the seal.

Problem: An advanced airway was not able to be established due to a possible obstruction from ice accidentally entering the airway or from an anatomical anomaly. Initially, an esophageal airway insertion was attempted; however the device was unable to be advanced much past the area where the oropharynx and esophagus meet. In fact, even the small diameter gastric tube could not be advanced past the obstruction. An unlighted laryngoscope and endotracheal tube were obtained, however the ET tube could not be advanced either.

Solution: 1) Extra care will be taken to make sure ice is carefully placed around the head prior to managing the airway; 2) A lighted laryngoscope will be added to the backup airway kit; and 3) A surgical cricothyrotomy kit will be added to establish an emergency airway if needed.

Problem: The medication Vital Oxy is thought to be too viscous and therefore is being administered too slowly.

Solution: Critical Care Research will try to reformulate the compound so it is thinner.

Problem: Standby fatigue became an issue during this extended standby and it was not uncommon for team members to have 18-24 hour shifts.

Solution: It would be better to have four response team members on rotation rather than three. We could then rotate-in two rested individuals every 12 hours .

Problem: Arterial CPA concentration rose somewhat higher than normal early in the terminal plateau phase.

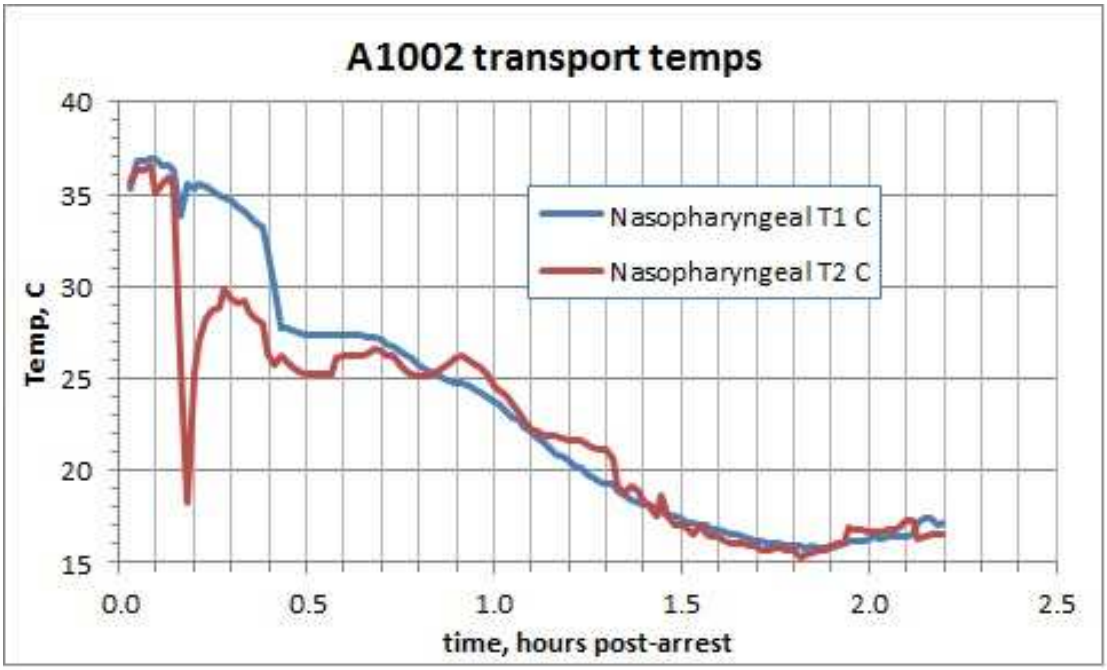
Solution: We overshot between two of the 15-minute manual refractometer reading intervals (we were using both the old B&L and the new electronic Sper). The notes don't indicate what we were doing. Obviously, we should have shut off the ramp shortly after the ~52 Brix arterial reading. When we did shut off the ramp, we also dumped volume from the reservoir. We ended the cryoprotection after the right jugular effluent caught up for over 1/2 hour. It was definitely a bad overshoot.

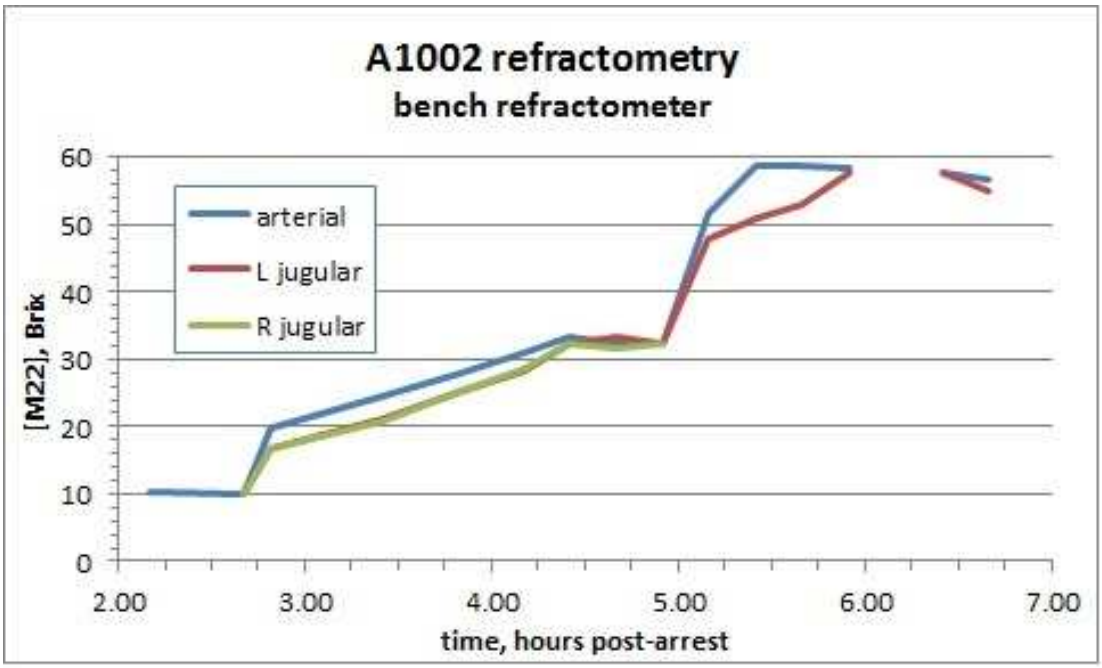
Regarding cryoprotectant equilibration with the tissue, the only immediate indicators of tissue perfusion we have are the skin color, the shrinking of the eyes and brain, and the venous effluent [CPA], and venous effluent is the only measure we can put a number to. Since we also want to minimize the time at near-terminal [CPA], we have to force the [CPA] up by going over 100% CNV, and if the arterial [CPA] drops below 100%, then we have to do the cycle again. Close-enough equilibration time is about 1/2 hour for the arterial [CPA], but at the same time, we also want to get both venous [CPA] readings over 100% for over half an hour. So being somewhat aggressive on arterial [CPA] pays off in reduced perfusion time.

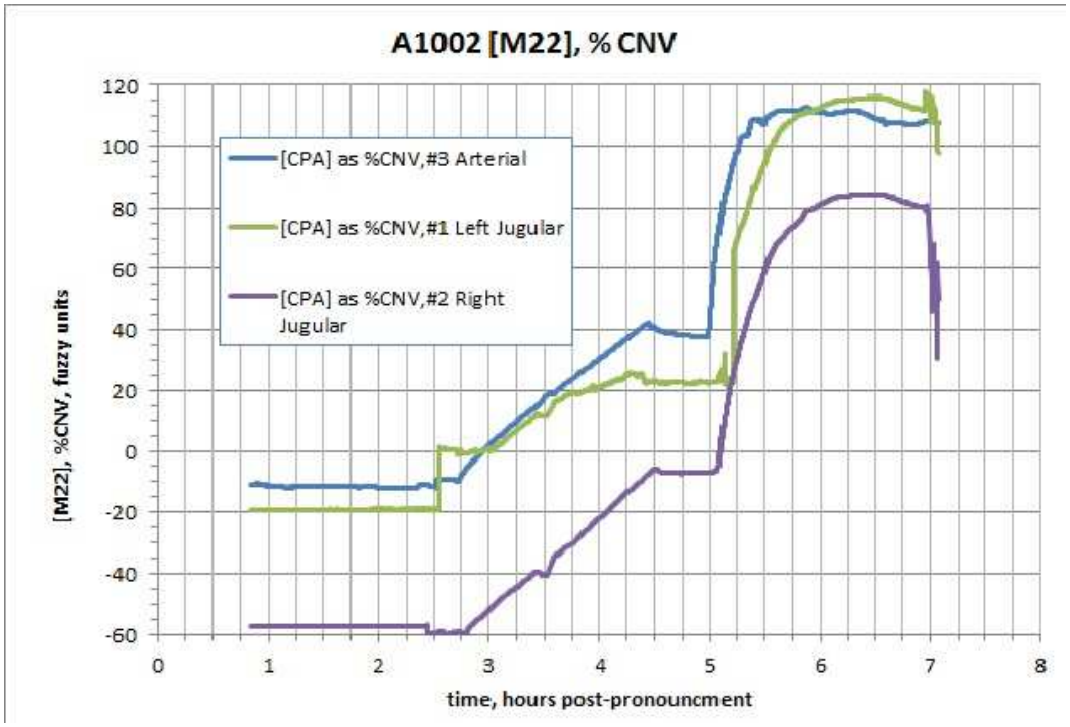
Yes, obviously we have no way of telling if the perfusion is uniform throughout the brain. (We transferred A-1002 to a neurocan the other day, and the skin around his jaw was white; i.e., the skin at least didn't get enough CPA to prevent ice formation). Our CAT scans apparently can see [CPA] and residual blood, so in the future we won't be completely blind as to what happened, but we have no way of knowing how uniform the cryoprotection is at the end of the procedure, and no way of doing anything about it anyway. We see asymmetries in eye shrinkage, brain shrinkage (may be a measuring method artifact; the CAT scans look more symmetrical), vascular resistance, jugular effluent temperature, and [CPA]. We've also seen a pressure excursion that implied that something broke free as the brain shrank and lodged further downstream (not A-1002).

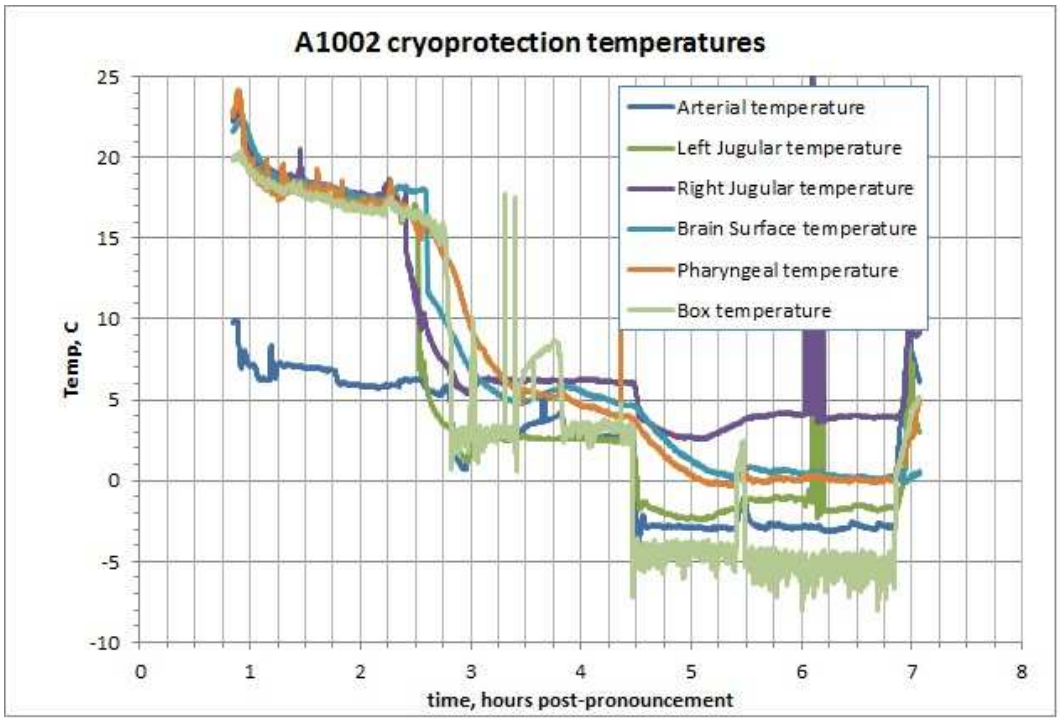
The time to the loss of the Blood Brain Barrier varies from patient to patient, and of course it doesn't go down like it was switched off, but cell by cell. We speculate that it might be possible to observe the transition in some detail by treating the BBB as a capacitor and measuring the impedance phase angle over time

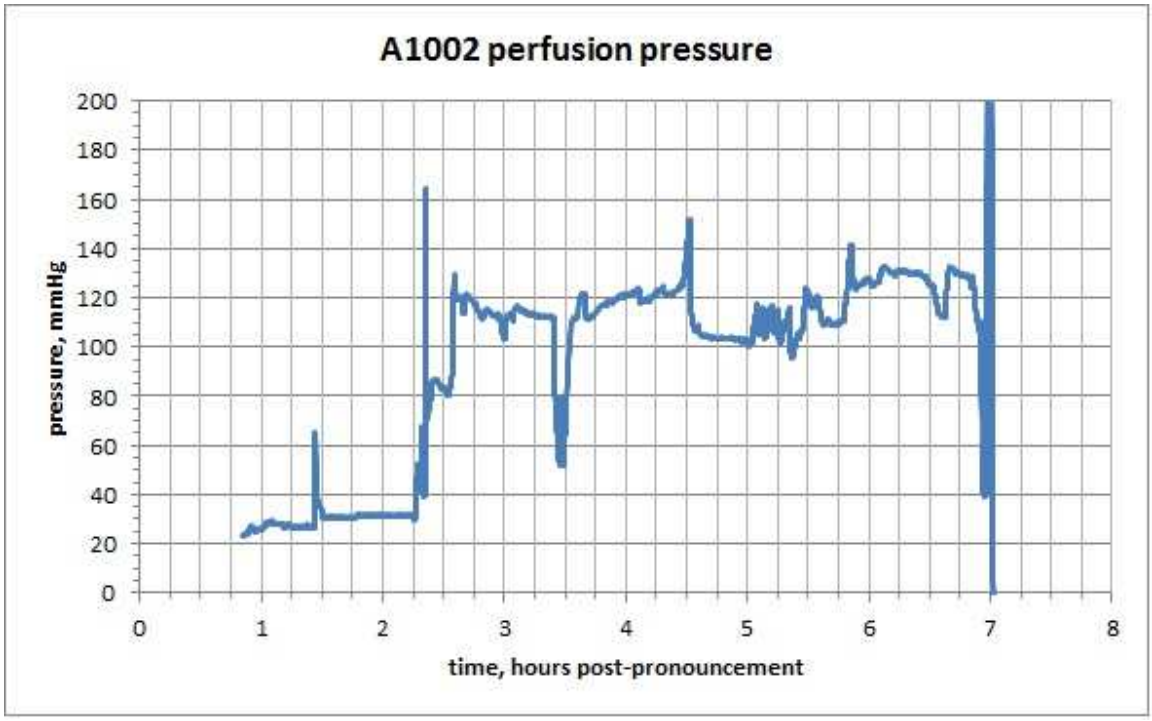
9. Graphs

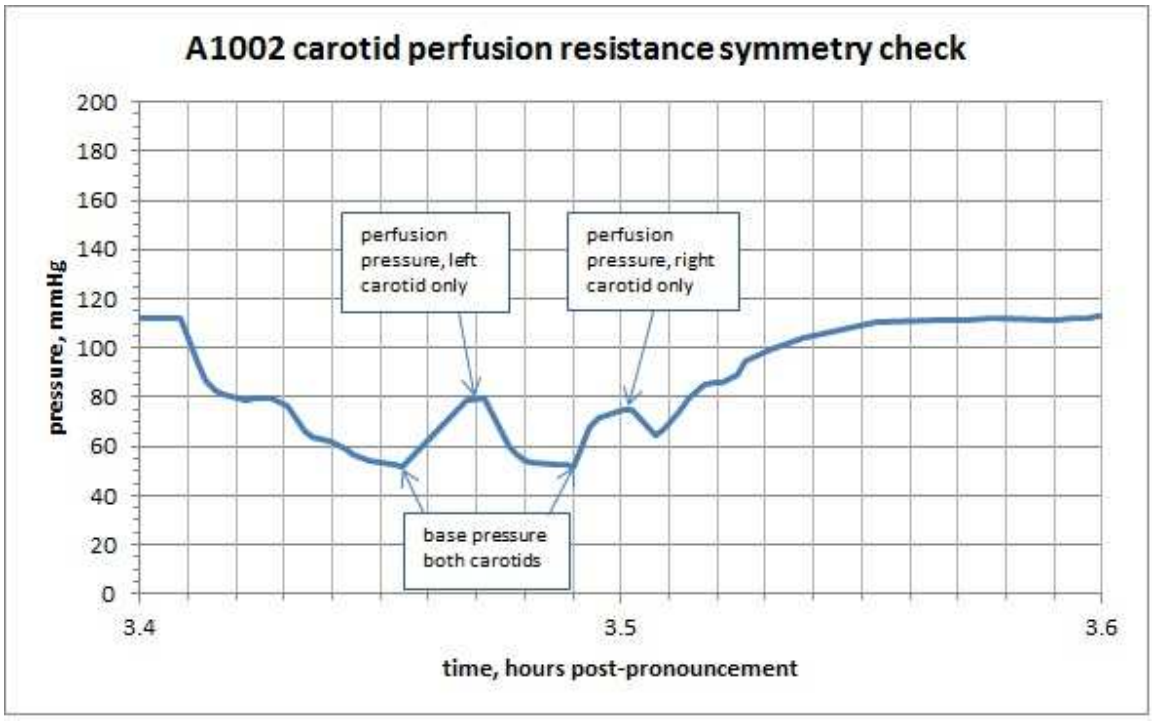

A1002 transport temps
Nasopharyngeal T1 C
Nasopharyngeal T2 C
Temp, C
40
35
30
25
20
15
0.0
0.5
1.0
1.5
2.0
2.5
time, hours post-arrest

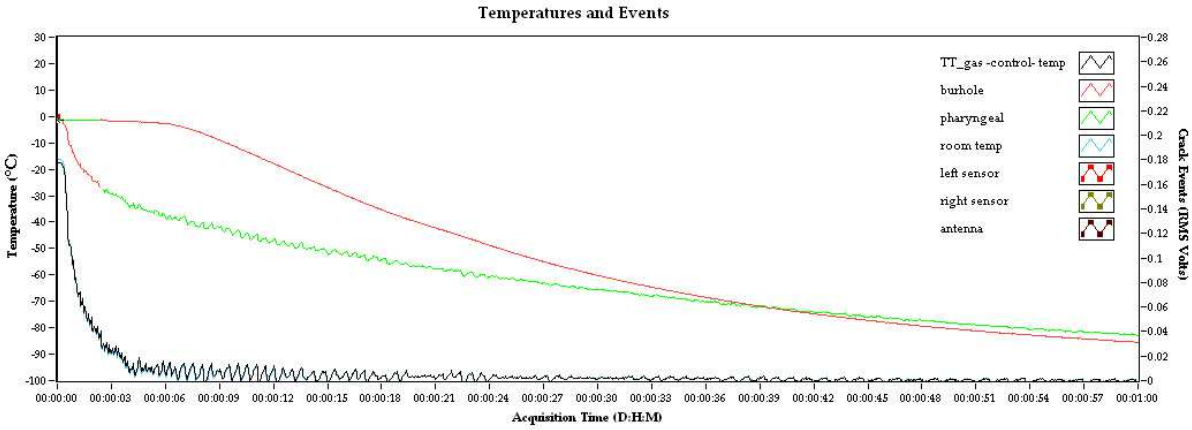

A1002 refractometry
bench refractometer
arterial
L jugular
R jugular
[M22], Brix
60
50
40
30
20
10
0
2.00
3.00
4.00
5.00
6.00
7.00
time, hours post-arrest


A1002 [M22], % CNV
[M22], %CNV, fuzzy units
time, hours post-pronouncment
[CPA] as %CNV,#3 Arterial
[CPA] as %CNV,#1 Left Jugular
[CPA] as %CNV,#2 Right Jugular

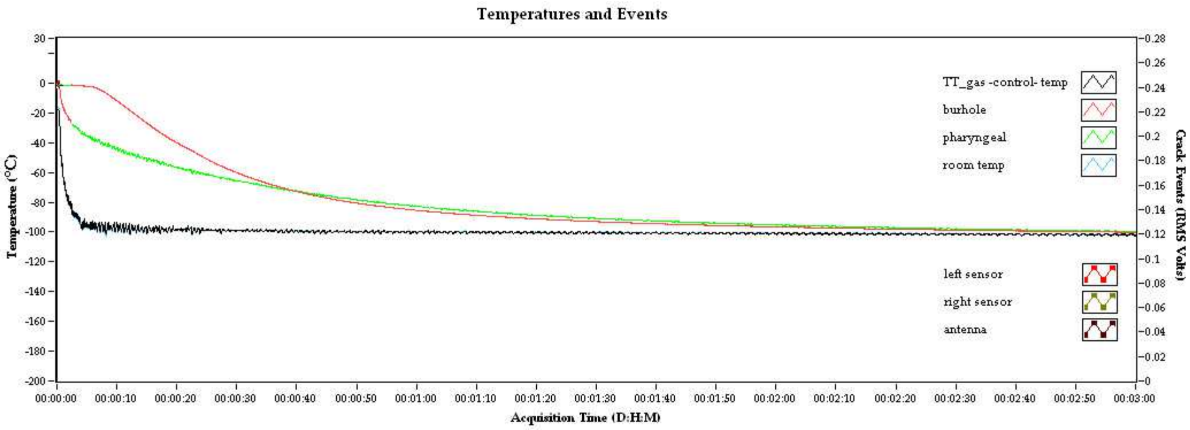

A1002 cryoprotection temperatures
Temp, C
time, hours post-pronouncement
Arterial temperature
Left Jugular temperature
Right Jugular temperature
Brain Surface temperature
Pharyngeal temperature
Box temperature


A1002 perfusion pressure
pressure, mmHg
200
180
160
140
120
100
80
60
40
20
0
0
1
2
3
4
5
6
7
8
time, hours post-pronouncement

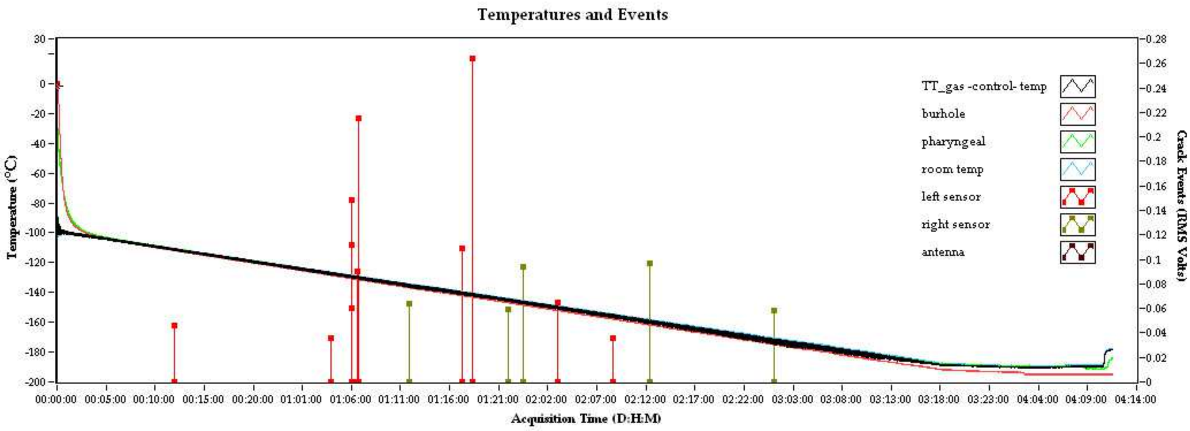

A1002 carotid perfusion resistance symmetry check
pressure, mmHg
200
180
160
140
120
100
80
60
40
20
0
perfusion pressure, left carotid only
perfusion pressure, right carotid only
base pressure both carotids
3.4
3.5
3.6
time, hours post-pronouncement



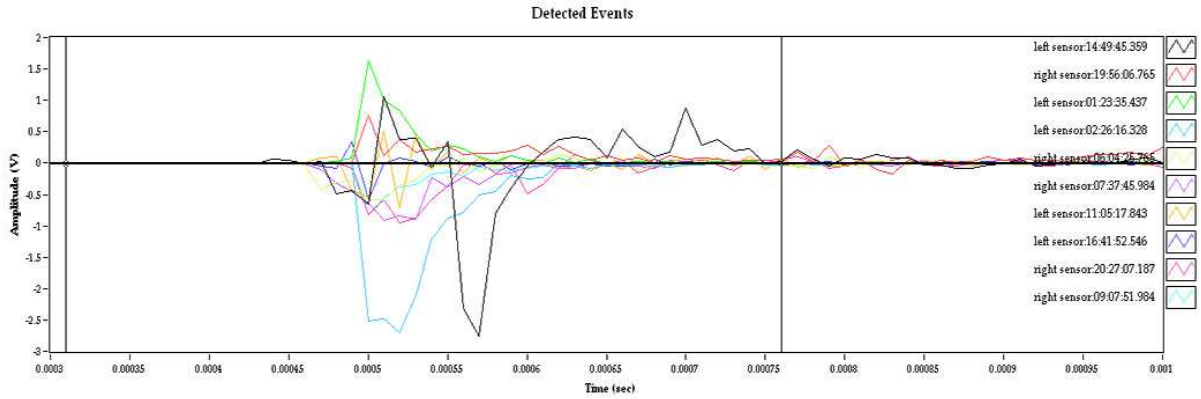
Temperatures and Events
Temperature (°C)
Crack Events (RMS Volts)
Acquisition Time (D:H:M)
TT_gas -control- temp
burhole
pharyngeal
room temp
left sensor
right sensor
antenna

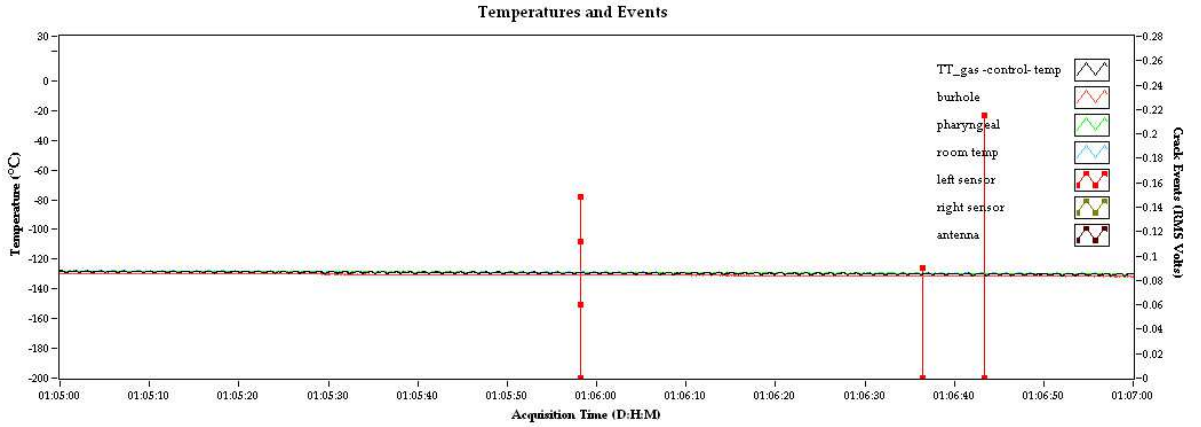


Temperatures and Events
Temperature (°C)
Crack Events (RMS Volts)
Acquisition Time (D:H:M)
TT_gas -control- temp
burhole
pharyngeal
room temp
left sensor
right sensor
antenna



Temperatures and Events
Temperature (°C)
Crack Events (RMS Volts)
Acquisition Time (D:H:M)
TT_gas -control- temp
burhole
pharyngeal
room temp
left sensor
right sensor
antenna


Detected Events
Amplitude (V)
Time (sec)
left sensor:14:49:45.359
right sensor:19:56:06.765
left sensor:01:23:35.437
left sensor:02:26:16.328
right sensor:07:37:45.984
left sensor:11:05:17.843
left sensor:16:41:52.546
right sensor:20:27:07.187
right sensor:09:07:51.984


Temperatures and Events
Temperature (°C)
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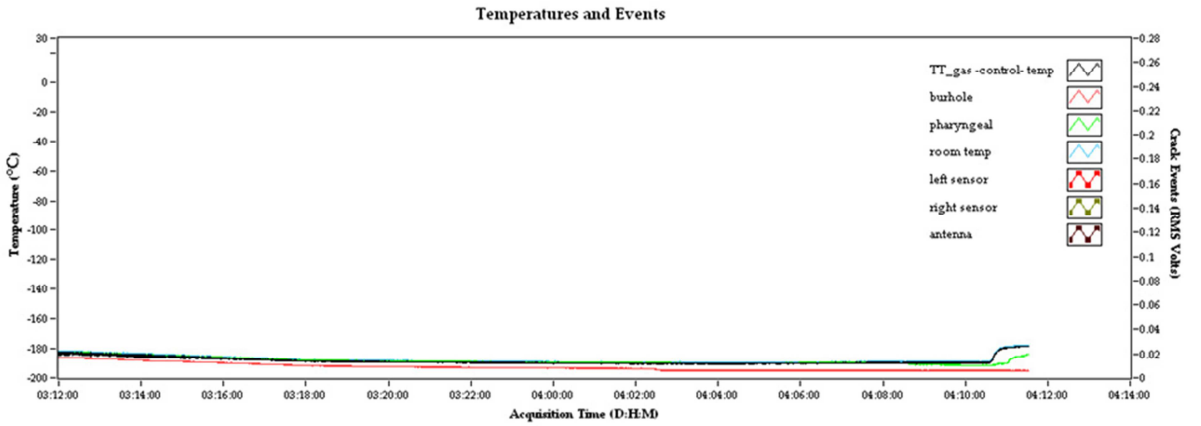
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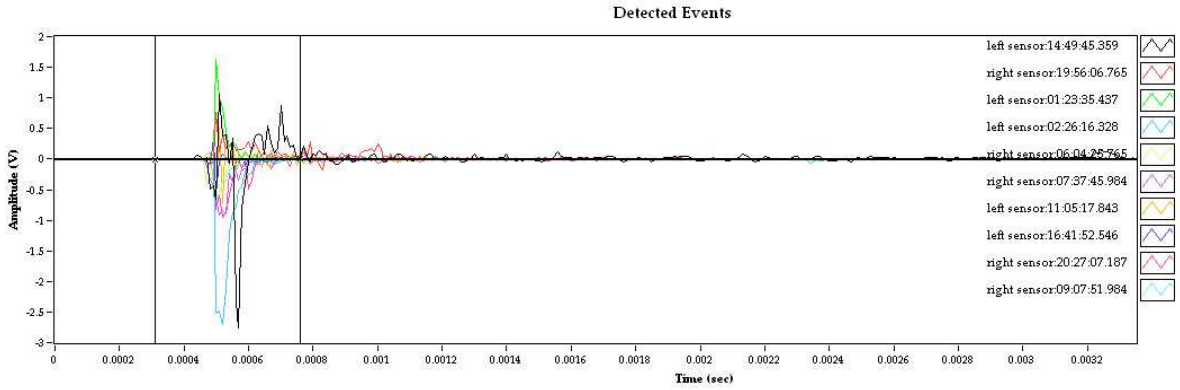

- End of report -