

Hemodialysis for Salicylate Toxicity during Therapeutic Hypothermia

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Background

- ◊ Hemodialysis (HD) is a well-established method of rewarming after accidental hypothermia
- ◊ Less is known about the effect of HD on temperature in the setting of therapeutic hypothermia after cardiac arrest (HACA)
- ◊ We hypothesize that when indicated for the treatment of overdose, HD can be performed during HACA without adverse event

Case



- ◊ Immediately post arrest, venous blood gas showed a pH of 7.18 and a PaCO₂ of 73
- ◊ Serum aspirin (ASA) level drawn at the time of arrest was 100 mg/dL
- ◊ HD was indicated for the treatment of salicylate overdose, however, concerns arose regarding dialysis catheter placement and temperature maintenance during active cooling
- ◊ After discussions with toxicology, HD was initiated
- ◊ We noticed her temperature rose slightly while receiving HD
- ◊ Following HD, continuous veno-venous hemofiltration (CVVH) was initiated due to persistent anuria
- ◊ During CVVH and continued HACA, she was consistently maintained within the goal temperature range, with only one outlying temperature of 34.5° C
- ◊ Patient improved and was discharged to inpatient psychiatry on hospital day 46

Results

- ◊ The patient was actively cooled to goal temperature (32-34°C) within 3 hours of initiating the hypothermic protocol despite placement of the dialysis catheter and preparing to start HD

Temperature and aspirin concentration over time

Time	9:23	11:00*	13:00	14:00	15:00†	16:30	20:00	22:00
ASA (mg/dL)	100		101			108	21	18
Temp (C)		40.7	35.4	32.9	32.4	34.2	34.9	33.3

*Hypothermic protocol initiated †Hemodialysis initiated

Discussion

- ◊ HACA is indicated in cases of cardiac arrest resulting from ventricular fibrillation (VF) or VT
- ◊ Historically, arrests after overdose or non-VF arrest have been excluded from study protocols, subsequently, the role for HACA is unknown
- ◊ In this case, the patient's temperature transiently increased while receiving HD, but was within goal while on CVVH
- ◊ We believe that HD or HACA should not delay or contraindicate each other in the rare cases where both are required
- ◊ More data needs to be collected to determine the relationship between cooling times, maintenance of goal temperature while receiving HD, and HD parameters

Conclusion

- ◊ HACA should not interfere with initiation of HD for the treatment of salicylate toxicity

