AHS Autonomic Dysreflexia: Adult Protocol

The Neurosciences Rehabilitation & Vision Strategic Clinical Network (NRV SCN) led the development of a provincial protocol for the recognition and management of Autonomic Dysreflexia in Adults with spinal cord injury. The protocol was developed by a working group of subject matter experts, and strengthened through broad stakeholder consultation. The protocol was approved by the AHS Clinical Operations Executive Committee (COEC) and became effective on September 15th, 2021. This FAQ document was created to provide further information and background about the protocol. If you have additional questions, or suggestions for additions to this document, please contact the NRV SCN at: NRV.SCN@ahs.ca.

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Protocol Information

What is Autonomic Dysreflexia?

Autonomic dysreflexia (AD) is a syndrome in which there is a sudden rise in blood pressure (20 to 40 mmHg) above the patient's normal blood pressure, in response to a painful (noxious) stimulus below their level of injury (eg. full bladder, skin pressure).

AD is a potentially life-threatening condition that most commonly occurs in patients with a spinal cord injury (SCI) at or above the T6 neurological level. AD is a medical emergency that causes a sudden rise in the patient's blood pressure. Patients with SCI commonly have a lower baseline blood pressure (especially those with higher level of injury). An elevated blood pressure for patients with a SCI may still be within normal range, therefore may not be recognized by healthcare professionals as a medical emergency.

AD is usually the result of a noxious stimulus below the level of the spinal cord injury, which the patient with SCI may not be able to feel or is unaware of, causing sudden unopposed sympathetic output. Early management includes recognition and removal of the cause of the noxious stimuli. If conservative management is unsuccessful, medical management with anti-hypertensive medication may be required to prevent serious complications.

Why was the provincial Autonomic Dysreflexia: Adults protocol developed?

Patients living with a spinal cord injury have shared that when they have called Emergency Medical Services (EMS) or have come to a hospital with Autonomic Dysreflexia (AD), care teams were often unfamiliar with the symptoms of this medical emergency, and the seriousness of it was dismissed. They have reported that AD management is currently inconsistent and lacking in many healthcare settings within AHS, putting patients at risk for serious complications.

Within Alberta Health Services (AHS), there was no standardized direction for staff on the recognition and clinical management of AD. Patients with an SCI can potentially be cared for in any healthcare area; staff without this experience may not know how to prevent AD in patients living with an SCI who may be at risk.

Additionally, Alberta patients with a SCI and their families were using AD cards from other provinces and American organizations to try to advocate for themselves. The information was not specific or aligned with the Alberta context. (Protocol is supported by updated patient education on MyHealth.Alberta.ca and an Alberta based pocket card for patients and their families.)

What causes Autonomic Dysreflexia?

AD is usually the result of painful (noxious) stimulus below the level of the spinal cord injury that the patient with SCI may not be able to feel or is unaware of.

For a summary of causes of AD and suggested removal of cause, refer to Appendix B in protocol.

What is most common cause of Autonomic Dysreflexia?

75-90% of AD incidents are caused by the urinary system such as distended bladder or urinary tract infection.

Why is Autonomic Dysreflexia a Medical Emergency?

If left untreated, AD may result in serious complications. During episodes of AD, blood pressure will continue to rise until the cause is identified and removed. This rise high blood pressure can cause stroke, seizure, cardiac arrest, and death. Early management may prevent serious complications.

Each site will need to follow their own site-specific emergency response procedure if the patient becomes unstable.

Why do patients with spinal cord injuries have a lower baseline blood pressure?

Patients with SCI commonly have lower baseline blood pressure due to a disruption of the nerve impulses at the level of injury. The autonomic nervous system controls blood pressure. With a spinal cord injury, the sympathetic nervous system, which is the fight or flight response, becomes hypoactive resulting in lower baseline blood pressure.

If autonomic dysreflexia is caused by a painful (noxious) stimulus, why does it happen if a patient cannot sense pain?

Autonomic dysreflexia is not triggered by the sensation of pain in the brain, but by pain impulses from the noxious stimuli entering the spinal cord below the level of spinal cord injury. AD is an abnormal response to a painful or noxious stimulus, caused by the disruption in spinal cord pathways.

In people without a spinal cord injury, pain impulses trigger the sympathetic nervous system (fight or flight) response which is then balanced by the parasympathetic nervous system (rest and digest), keeping blood pressure at a safe level. In people with SCI, the sympathetic/parasympathetic response is disrupted. The sympathetic system continues its output without any opposition from the parasympathetic system. Excess sympathetic output below the level of injury is what causes the high blood pressure.

Why does blood pressure need to be checked every 2-5 min during AD?

During an episode of AD, the patient's BP will continue to rise, often rapidly, until the cause of the AD is identified and resolved. This is because the noxious stimulus will continue to stimulate the sympathetic nervous system. Monitoring BP will help determine if interventions are successful in resolving the AD, or if further intervention, such as medication is required.

Monitoring BP every 2-5 minutes is also important after interventions, such as medication, to ensure the patient does not become hypotensive.

It is therefore important to monitor the patient's BP frequently until the AD has resolved and their BP has returned to their normal baseline.

Why is the prevention of AD at the end of the protocol instead of the beginning?

This protocol was created primarily to guide health care providers in recognizing and treating patients in crisis (experiencing AD) in a timely fashion to prevent harm. However, prevention of AD is a very important aspect and addressed in section 10 of the protocol.

Who created this governance document?

The Autonomic Dysreflexia: Adults protocol and appendixes were developed by a provincial multidisciplinary working group of subject matter experts, in consultation with Health Professions Strategy and Practice, as well as a number of persons with lived experience. See working group membership below.

What care areas does the protocol apply to?

The protocol applies to all AHS urban and rural hospitals (including the Emergency Department), psychiatric facilities, and Urgent Care Centres.

These documents may also be used in non-acute care settings; however the site/unit managers are responsible for determining whether the governance documents in whole or in part are appropriate to their patient care setting and communicating that out to staff.

Does this protocol apply to EMS staff?

AHS Emergency Medical Services have their own protocols and procedures; however, they are aware of the AD protocol, and their quality improvement team collaborated on the development of the Alberta AD wallet card and patient brochure. The NRV SCN engaged with EMS leadership, and EMS leadership asked for online medical consultation (OLMC) to be added to the AD wallet card and brochure. The protocol has been communicated broadly to EMS staff and it is being developed into an EMS Patient Safety Theme of the Month (ToM).

Can Nurses (RN, RPN, LPN) give Lidocaine without a prescriber's order?

In emergent situations where it is not possible to obtain an order prior to initiating a protocol, contacting the MRHP can happen at the same time as the protocol and interventions within it are being implemented. Confirm the dose of the medication with MRHP before administration, when possible. Lidocaine is a schedule 1 medication; a medication that requires an order or prescription. CARNA Medication Guideline 10: Nurses must have a client specific order from an authorized prescriber in order to implement a protocol that includes the administering of Schedule 1 medications within the named protocol. CLPNA Medication Guideline Protocols: A protocol is an organizationally approved guide for practice that is to be implemented by health care professionals managing specific client health needs in their practice environment. Emergent situations are defined (in the CARNA document) as circumstances that call for immediate action or attention such that a delay in treatment would place an individual at risk of serious harm.

What is a schedule 1 medication?

A Schedule 1 medication is a medication that requires a prescription or order from an authorized prescriber. Controlled drugs and substances are included in Schedule 1. For information on medication schedules please see the Scheduled Drugs Regulation under the Pharmacy and Drug Act (2000).

Where can I learn more about the definitions used in the policy suite and governance documents?

AHS policy services (Insite) provides direction, framework and resources to develop provincial governance documents. You can reach out to policy@ahs.ca for more information.

Is there a quick summary for treating AD?

Appendix A in protocol: Autonomic Dysreflexia Recognition and Management Algorithm is a visual one page summary for the recognition and treatment of AD.

Is there a quick reference for the removal of common AD triggers?

Appendix B in protocol: Methods for Removal and Resolution of Common AD Triggers. This appendix summarizes common causes of AD, and potential methods to remove the cause.

What resources are available to assist patients and families to advocate for themselves?

There are 4 primary resources to support patients with SCI to advocate for themselves when experiencing AD:

1. The Autonomic Dysreflexia: Adult protocol is populated on the AHS extranet, so that patients and families have access to the protocol created to support staff in the recognition and treatment of AD.
2. The Alberta Autonomic Dysreflexia Wallet Card which includes a QR code to the AHS protocol is available online.
3. Patient Brochure: Helping Others Understand Your Autonomic Dysreflexia has primarily the same content as the wallet card, and is also available online
4. myHealthAlberta: Spinal Cord Injury: Autonomic Dysreflexia has information for patients about AD, and also a link to the Alberta AD wallet card.

References

Bycroft J, Shergill IS, Choong EAL*, et al* Autonomic dysreflexia: a medical emergency *Postgraduate Medical Journal* 2005; **81:**232-235.

Claydon, V., Steeves, J. & Krassioukov, A. Orthostatic hypotension following spinal cord injury: understanding clinical pathophysiology. *Spinal Cord* **44,** 341–351 (2006).

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The co-chairs would like to thank the members of this working group for their time and expertise in the development of these documents.

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