HEALTH HOLDING

HAFER ALBATIN HEALTH CLUSTER
MATERNITY AND CHILDREN HOSPITAL

Department:	Laboratory and Blood Bank		
Document:	Internal Policy and Procedure		
Title:	Management of Donor Adverse Reactions		
Applies To:	All Blood Bank Staff		
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1. PURPOSE:

1.1 This procedure provides guidance on how to identify, prevent and manage adverse reactions which may occur during or after blood donation.

2. DEFINITONS:

2.1 **Donor adverse reactions:** Complications related to the donation process either directly or indirectly. They may be localized or generalized, and mild, moderate or severe. They may occur at any time during the process of medical history, examination, phlebotomy, and after donation.

2.2 **Bradycardia:** an abnormally slow heart rate.

2.3 **Tachycardia:** an abnormally rapid heart rate.

2.4 **Haematoma:** A swelling or mass of blood confined to an organ, tissue. or space caused by a break in a blood vessel

2.5 **Tetany:** a condition marked by intermittent muscular spasms.

2.6 **Mild Donor Reaction:** Signs and symptoms may include sweating, pallor, nausea, vomiting, faintness, dizziness, light-headedness, yawning, increased nervousness or anxiety, hyperventilation, hypotension, cold extremities, flushing, twitching, or uncomplicated loss of consciousness 5-30 seconds.

2.7 **Moderate Donor Reaction:** Signs and symptoms are the same as a Mild Donor Reaction, but may include loss of consciousness >30 seconds, prolonged or severe vomiting, and/or tetany. The donor may be hypotensive, tachycardic, bradycardic or be incontinent of bowel or bladder.

2.8 **Severe Donor Reaction:** Signs and symptoms are the same as Mild and Moderate Donor Reactions, but may include severe tetany, convulsions, loss of consciousness with no response, respiratory arrest, severe bradycardia, and/or cardiac arrest.

3. POLICY:

3.1 Adverse reactions should be monitored during donation and managed properly if occurred.

3.2 The staff on duty in donor area must have valid basic life support certification and must be alert, trained and competent to:

- 3.2.1 Take the possible measures to prevent any adverse donor reaction.
- 3.2.2 Observe, recognize and handle any adverse donor reaction (including how to do CPR).
- 3.2.3 Provide emergency medical care as necessary and check the necessary equipment and supplies daily.
- 3.2.4 Report and monitor the adverse donation event.

3.3 Donors who experience moderate, severe reactions, convulsions or cardiac shock should be excluded from future donation.

3.4 Any donor with adverse reaction who requires follow up should be transferred to Pedia ER (for male donors) or OBS ER (for female donors). The internal medicine doctors are responsible for managing the donors and transfer them to other hospitals when needed.

3.5 CPR team must be ready to attend to blood bank at time of need.

3.6 CRASH CART is put inside blood donation room to be used by internal medicine/ ICU physicians or CPR team when needed.

3.7 Adverse events should also be documented on donor adverse reactions form.

4. PROCEDURE:

4.1 **Materials required:** See materials and equipment in 5

4.2 If donor showed any symptoms or signs of adverse reactions, stop donation at once (remove tourniquet and withdraw needle).

4.3 In all cases of donor reactions, inform the blood bank physician to examine him as soon as possible.

4.4 **Systemic reactions:**

4.4.1 Prevention:

4.4.1.1 Frequency of adverse reaction increases for the first time donors, donors who have not eaten for three hours before donation, and those who are not aware about the procedure of donation.

4.4.1.2 Oral fluid intake before and soon after the non-automated whole blood donation appears to reduce the frequency of systemic reactions.

4.4.1.3 Close observation of donor and prompt treatment of mild reaction will prevent reaction from progressing to moderate or sever.

4.4.1.4 In donors experiencing a reaction, an injury to head, face, or extremity may occur. The staff should be vigilant to detect reactions early and to prevent injuries as much as possible.

4.4.2 Vasovagal reaction complex:

4.4.2.1 Usually occurs within 1 hour of donation.

4.4.2.2 The reactions are more common in young donors, low-weight donors, female donors, and first-time donors.

4.4.2.3 Non-syncopal reactions are 25 times more common than syncopal reactions.

4.4.2.4 Syncope can be treated by aromatic spirit of ammonia.

4.4.3 Classification:

4.4.3.1 Mild Reactions:

4.4.3.1.1 Symptoms:

4.4.3.1.1.1 Pallor and mild sweating, decreased blood pressure, increased nervousness, increased respiration (yawing and sighing), and/or thready pulse.

4.4.3.1.2 Treatment:

4.4.3.1.2.1 Stop phlebotomy.

4.4.3.1.2.2 The donor should be placed in a recumbent position as soon as any reaction is suspected.

4.4.3.1.2.3 Maintain adequate airway (Loosen clothing).

4.4.3.1.2.4 Raise donor's feet.

4.4.3.1.2.5 Talk to the donor.

4.4.3.1.2.6 Apply cold wet towels to his forehead.

4.4.3.1.2.7 Monitor vital signs (blood pressure, breathing, pulse, and temperature).

4.4.3.2 Moderate Reactions:

4.4.3.2.1 Symptoms:

4.4.3.2.1.1 Nausea and vomiting, dizziness, rapid shallow breathing, slow pulse and hypotension.

4.4.3.2.2 Treatment: In addition to treatment of mild reaction,

4.4.3.2.2.1 Instruct donor to breath slowly and deep.

4.4.3.2.2.2 Turn donor head to either side.

4.4.3.2.2.3 In case of vomiting, offer him a basin & tissues.

4.4.3.2.2.4 Do Not Give Oxygen in hyperventilation.

4.4.3.3 Severe Reactions:

4.4.3.3.1 Symptoms:

4.4.3.3.1.1 Loss of consciousness, involuntary movements, gasping breathing and cessation of muscle activity. The pulse rate is often low during vasovagal reactions while the rate is often high during volume depletion.

4.4.3.3.2 Treatment: In addition to the above measures,

4.4.3.3.2.1 Check vital signs until return to normal.

4.4.3.3.2.2 Evaluate the symptoms and may apply aromatic spirit of ammonia, or any other medication accordingly.

4.4.3.3.2.3 May need short-term observation, intravenous fluid administration in the emergency room, or both.

4.4.3.3.2.4 With help from staff prevent donor from injuring himself.

4.4.3.3.2.5 Allow adequate airway.

4.4.3.3.2.6 Elevate donor feet above head level.

4.4.3.3.2.7 If no response call hospital emergency.

4.4.3.3.2.8 The vital signs must return to normal before discharge.

4.4.3.3.2.8.1 In the presence of systemic reaction and the vital signs do not return to normal, the donor is transferred to pedia ER (for male donors) or Gyne ER (for female donors) according to the internal medicine doctor on duty to manage the donors and transfer them to other hospitals when needed.

4.4.3.3.2.9 Defer the donor from future donations.

4.4.3.3.3 Convulsions:

4.4.3.3.3.1 With help from staff, prevent donor from injuring himself.

4.4.3.3.3.2 Allow adequate airway and position donor on side.

4.4.3.3.3.3 Elevate donor feet above head level.

4.4.3.3.3.4 Inform blood bank physician.

4.4.3.4 Cardiac or respiratory difficulties:

4.4.3.4.1 Very rare incident.

4.4.3.4.2 D.D. between vasovagal reaction and cardiac shock.

4.4.3.4.2.1 For vasovagal attack, raise donor feet.

4.4.3.4.2.2 For cardiac shock, rapid pulse and cyanosis are apparent.

4.4.3.4.3 In cardiac arrest:

4.4.3.4.3.1 Ask the near staff to call hospital emergency team and start CPR until medical aid arrives.

4.4.3.4.3.2 Inform blood bank physician who may give oxygen, or IV Fluids or hydrocortisone injection accordingly until emergency team arrives.

4.4.3.4.4. Record all the events in donor adverse reaction report.

4.5 **Non-systemic reactions:**

4.5.1 Hematoma:

4.5.1.1 Prevention:

4.5.1.1.1 Select large firm vein.

4.5.1.1.2 No good vein, no venipuncture.

4.5.1.1.3 Prevent needle movement by tapping it to donor arm.

4.5.1.2 Treatment:

4.5.1.2.1 Loosen tourniquet and remove needle.

4.5.1.2.2 Apply sterile gauze (or cotton) with pressure for several minutes.

4.5.1.2.3 Donor hold arm above heart level.

4.5.1.2.4 Apply ice to the area for 5 minutes.

4.5.1.2.5 Inform donor that bruising and slight discomfort may occur.

4.5.2 Arterial Puncture:
- 4.5.2.1 Symptoms:
  - 4.5.2.1.1 Bright red blood.
  - 4.5.2.1.2 Rapid collection (within 4 minutes).
  - 4.5.2.1.3 Pulsating needle suggests arterial puncture.
  - 4.5.2.1.4 The hematoma rate is higher with arterial puncture.
- 4.5.2.2 Treatment:
  - 4.5.2.2.1 Remove needle and apply firm pressure for 10 minutes.
  - 4.5.2.2.2 Check radial pulse and if absent, inform blood bank physician.
  - 4.5.2.2.3 Most donors recover quickly and completely, but some might present with waxing and waning hematoma and should be evaluated for pseudo aneurysm by ultrasound studies.

4.5.3 Local Nerve Injury:
- 4.5.3.1 Nerve injuries may be unavoidable because nerves cannot be palpated.
- 4.5.3.2 Symptoms:
  - 4.5.3.2.1 Sensory changes away from the phlebotomy site, such as in the forearm, wrist, hand, upper arm, or shoulder.
- 4.5.3.3 Treatment:
  - 4.5.3.3.1 Those injuries are almost always transient, and recovery is almost always seen.
  - 4.5.3.3.2 In 7% of injured donors, it may take 3 to 9 months.
  - 4.5.3.3.3 In severe cases, a neurologist referral may be indicated.

4.5.4 Upper Extremity Deep Vein Thrombosis:
- 4.5.4.1 Symptoms:
  - 4.5.4.1.1 Pain; antecubital fossa tenderness.
  - 4.5.4.1.2 Swelling of the arm.
  - 4.5.4.1.3 A prominent, palpable, cord-like thickening of the thrombosed vein.
- 4.5.4.2 Treatment:
  - 4.5.4.2.1 Medical referral of donors who are experiencing deep vein thrombosis should not be delayed, so that treatment with anticoagulant can begin promptly.

4.6 Most deaths seen after blood donation are coincidentally related to the donation rather than caused by it.

4.7 Ask the donor to sign on the donor adverse reaction form that he/ she is in a good condition and he/ she is aware, receive and understand the post donation instructions.

5. MATERIALS AND EQUIPMENT:

5.1 **Records and forms:**
- 5.1.1 Donor adverse reaction form and File.
- 5.1.2 Donor History Questionnaire (DHQ) and consent Form
- 5.1.3 Daily check of emergency equipment and supplies Form
- 5.1.4 CRASH CART check form

5.2 **Following materials are required to attend to any emergency arising in the post donation period:**
- 5.2.1 Bandages/Dressings (Gauze and cotton).
- 5.2.2 Band-Aid.
- 5.2.3 Towels, tourniquet, alcohol swabs.
- 5.2.4 Tongue depressor.
- 5.2.5 Clinical Thermometer.
- 5.2.6 Blood pressure monitor.
- 5.2.7 Cold compresses.
- 5.2.8 Emesis basin or equivalent.
- 5.2.9 Emergency supplies box (Crash Cart) which contains:
  - 5.2.9.1 Normal saline 500 ml.

5.2.9.2 Dextrose 5% 500 ml
5.2.9.3 Transfusion sets.
5.2.9.4 Ca-Gluconate 10 ml amp.
5.2.9.5 Hydrocortisone amp.
5.2.9.6 10 ml and 5 ml disposable syringes.
5.2.9.7 Paracetamol tab.

5.2.10 Oxygen and mask.
5.2.11 Oropharyngeal airway (plastic or hard rubber).
5.2.12 Public services emergency numbers (Ambulance"997", Police "999", and Fire "998")
5.2.13 Hospital emergency number (for code BLUE: 2222).

6. RESPONSIBILITIES:

6.1 The donor area staff in attendance is responsible for monitoring and managing the adverse reaction of the donor.
6.1.1 Blood bank technician / specialist/ phlebotomist to notice and manage the mild reactions.
6.1.2 The medical doctor who examine the donor:
6.1.2.1 Follow and manage any reaction and coordinate the management with the internal medicine doctor on duty.

7. APPENDICES:

7.1 N/A

8. REFERENCES:

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8.2 The Standard Policy For Blood Banks In The Kingdom Of Saudi Arabia, 1st edition, 1435-2014.
8.3 National Standards For Clinical laboratories and Blood Banks, 1st edition, 2015.
8.4 AABB Technical manual, 18th edition, 2014.
8.5 AABB Standards for Blood Banks and Transfusion Services, 30th edition, 2016.
8.6 Mollison's Blood Transfusion in Clinical Medicine; 12th edition, 2014.
8.7 Good Manufacturing Practice for Blood Establishments, Version 2.0, May 2019, Saudi FDA

9. APPROVALS:

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