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TOPIC #5: MARK-1 NERVE AGENT ANTIDOTE KIT




I. GUIDELINE:

- A. Medication Administration, **MARK-1** Nerve Agent Antidote Kit, involves the administration of **Atropine** (2 mg) and **2-PAM** (Pralidoxime Chloride – 600 mg) via autoinjectors to a victim of Nerve Agent Exposure.
- B. The Nerve Agent Antidote Kit, **MARK-1**, is an antidote used by the U.S. Military in the treatment of nerve agent poisoning. Description: The **MARK-1** kit consists of four separate components: the **Atropine** autoinjector, the **2-PAM** autoinjector, the plastic clip, and the foam carrying case.
- C. Nerve Agents include Tabun (GA), Sarin (GB), Soman (GD), GF, and VX.

II. INDICATIONS:

- A. Nerve Agent Exposure to the eyes, respiratory tract, or skin.
- B. As per Nerve Agent Exposure Protocol.

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III. CONTRAINDICATIONS:

- A. Children under 40 Kg.

IV. RELATIVE CONTRAINDICATIONS:


- A. Patients with poor muscle mass at injection site.
- B. Asymptomatic nerve agent exposure.

V. EQUIPMENT:


- A. **MARK-1** Nerve Agent Antidote Kit.

VI. PROCEDURE:

- A. Position the patient on his or her side (recovery position).
- B. Determine number of previous MARK-1 Nerve Agent Antidote Kit administrations to patient for his exposure.
- C. Determine injection site.
 - 1. Thigh injection area – the thigh injection site is the area about one hand's width above the knee to one hand's width below the hip joint, into a large muscle and away from any bone.
 - 2. Buttocks – if the patient is thinly built, then the injections should be administered into the upper outer quarter (quadrant) of the buttocks to avoid injury to the femur.
- D. Position yourself near the injection site.
- E. With your nondominant hand, hold the autoinjectors by the plastic clip so that the larger autoinjector (**2-PAM**) is on top and both are positioned in front of you at eye level.
- F. With your dominant hand, check the injection site (thigh or buttocks) for buttons or objects in pockets, which may interfere with the injections.

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- G. With your dominant hand, grasp the **Atropine** autoinjector (the smaller of the two) with the thumb and first two fingers. **DO NOT** cover or hold the needle end with your hand, thumb, or finger, as this may lead to accidental injection.
- H. Pull the autoinjector out of the clip with a smooth motion. The autoinjector is now armed. **DO NOT** touch the needle end.
- I. Hold the autoinjector with your thumb and two fingers (pencil writing position). **DO NOT** touch the needle end.
- J. Position the green (needle) end of the autoinjector against the injection site (thigh or buttocks). **DO NOT** inject into areas near the hip, knee, or femur.
- K. Apply firm, even pressure (not a jabbing motion) to the autoinjector until it pushes the needle into the patient's thigh (or buttocks). Take care not to hit any objects in patient's pockets. Using a jabbing motion may result in an improper injection or injury.
- L. Hold the autoinjector firmly in place for at least ten (10) seconds.
- M. Carefully remove the Atropine autoinjector from the patient's injection site.
- N. Place the used autoinjector carefully between the little finger and ring finger of the hand that is holding the remaining autoinjector and the clip.
- O. Pull the **2-PAM** autoinjector (the larger of the two) out of the clip and inject the patient in the same manner described in steps F through M, holding the black (needle) end against the injection site. **DO NOT TOUCH THE NEEDLE END.**
- P. Drop the clip without dropping the used autoinjectors.
- Q. Carefully set the used autoinjectors at the patient's side.
- R. Repeat the above steps using the second and third sets of MARK-1 Nerve Agent Antidote Kits, as necessary.

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S. Document doses given as appropriate to the situation (on triage tag and/or PCR) and dispose of discharged autoinjector in similar fashion as all used sharps.

T. Massage the injection site if time permits.

VII. POTENTIAL COMPLICATIONS:

- A. Over Atropination.
- B. Accidental injection.
- C. Localized trauma at injection site from injection.

VIII. DRUG DOSAGE AND ADMINISTRATION:


Nerve Agent Exposure:

A. Atropine – (2 mg) autoinjector

1. **Mild Exposure** – administer one (1) Atropine autoinjector (2 mg) IM, may repeat every 3-5 minutes until symptoms improve.
2. **Moderate Exposure** - administer two (2) Atropine autoinjectors (4 mg) IM, may repeat every 3-5 minutes until symptoms improve.
3. **Severe Exposure** – administer three (3) Atropine autoinjectors (6 mg) IM, may repeat every 3–5 minutes until symptoms improve.

B. 2-PAM – (Pralidoxime Chloride – 600 mg) autoinjector

1. **Mild Exposure** – if symptoms do not improve within 5 minutes following administration of Atropine, administer one (1) 2-PAM autoinjector (600 mg) IM, one (1) time only.

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2.Moderate Exposure – administer one (1) 2-PAM autoinjector (600 mg) IM, may repeat x1 in 5-10 minutes if symptoms do not improve.

3.Severe Exposure – administer three (3) 2-PAM autoinjectors (1800 mg) IM.

IX. PRECAUTIONS AND SPECIAL CONSIDERATIONS:

- A. **It is important that the injections be given into a large muscle area.** If the patient is thinly built, and has insufficient muscle mass in the outer thigh area, then the injections should be administered into the upper outer quarter (quadrant) of the buttocks to avoid injury to the femur. The outer quarter of the buttocks should be used to avoid potential nerve damage.
- B. Accidental injections into the hand WILL NOT deliver an effective dose of the antidote, especially if the needle goes through the hand.
- C. Squat, DO NOT kneel, when administering nerve agent antidotes to patients. Kneeling may force the chemical agent into or through your protective clothing.



**MARK-1 KITS CARRIED BY THE 4 PARAMEDIC UNITS
(RESCUE 14, RESCUE 24, RESCUE 38, RESCUE 46)
AND RESCUE 2**