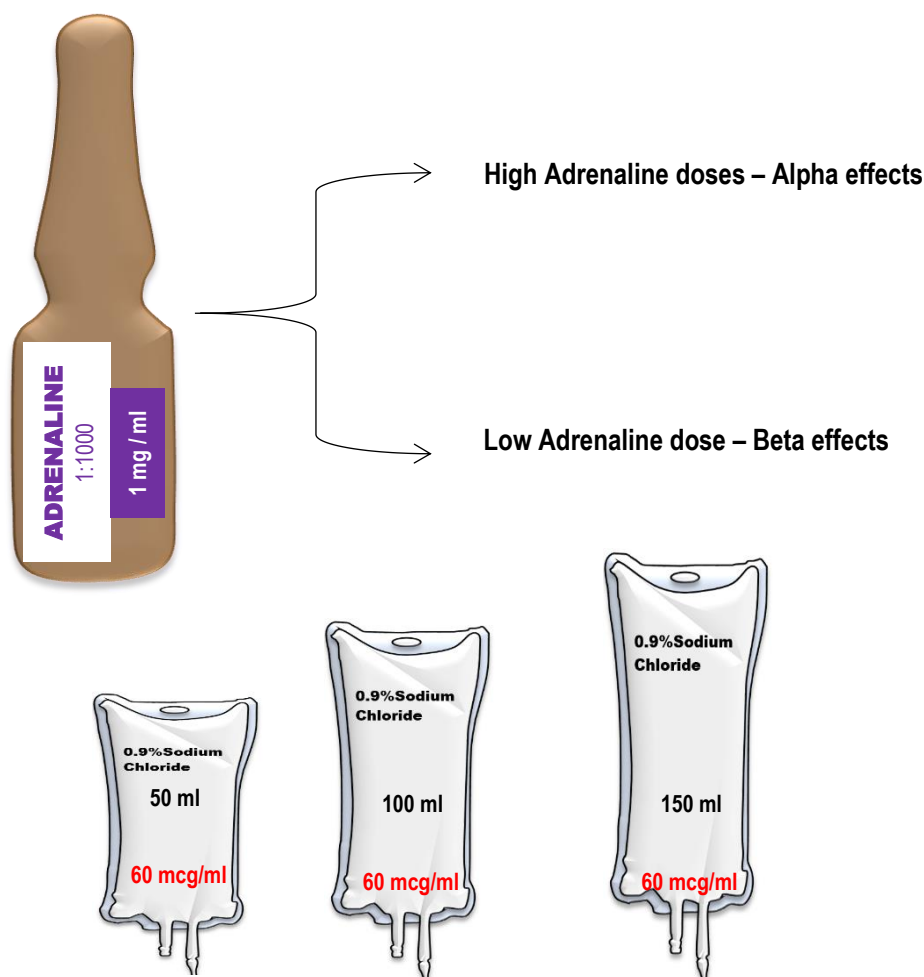


ADRENALINE (EPINEPHRINE) SUMMARY 2023

S.S.V. Siko

Mechanism of action

Adrenaline is a catecholamine produced by the adrenal medulla which acts as an agonist on β -2, α -1 and β -1 receptors. At high doses adrenaline binds selectively to α -1 receptors and at lower doses bind to B receptors.



Indications

Cardiac arrest, anaphylaxis, bradycardia with a pulse, severe acute asthma and hypotension are some of the indications for adrenaline.

Contraindications

- Pheochromocytoma
- Tachycardia

Dose

- Cardiac arrest: 1 mg every 3 to 5 minutes intravenously / intraosseous
- Anaphylaxis: 0.5 mg IM
- Bradycardia with a pulse: 2 – 10 mcg/min
- Acute severe asthma: Adrenaline 0.3 to 0.5 mg SC every 20 minutes

Side effects

- Dyspnoea
- Peripheral vasoconstriction
- Angina
- Hypertension
- Tachycardia
- Ventricular arrhythmias

Drug interactions

Adrenaline has numerous potential drug interactions and the table below outlines lists them.

NO.	DRUG CLASSES	EXAMPLES	EFFECTS
1	Alpha receptor blocker	Haloperidol Labetalol Phenothiazine	Antagonism of alpha rector agonists
2	Anaesthetics	Volatile agents	Risk of arrhythmias
3	Catechol-O-methyltransferase (COMT) inhibitor	Entacapone	Increased sympathomimetic effects
4	Digitalis glycoside	Digoxin	Increased CNS and CVS effects
5	Monoamine oxidase inhibitors (MAOI)	Moclobemide Tranylcypromine	Increased α -1 effects
6	Sympathomimetic drugs	Dobutamine Dopamine	Additive sympathomimetic effects
7	CNS stimulants	Cocaine	Increased sympathomimetic effects
8	Tricyclic antidepressants (TCA)	Amitriptyline Imipramine Clomipramine	Increased α -1 effects

Bibliography

Ainslie G, Ascott-Evans BH, Barnes KI, et al (2010). Cardiovascular system. In South African Medicine Formulary: 130-131. Edited by Rossiter D. Cape Town. FA Print,

Alekar S, Ariefdien N, Brannigan L, et al (2017). Cardio-Respiratory Emergencies. In A guide to the management of common medical emergencies in adults: 4-9. Edited by Kloeck, WGJ. Johannesburg: University of the Witwatersrand.

Dalal, R. and Grujic, D. (2023) Epinephrine. StatPearls Publishing.

(No date) Gov.au. Available at: <https://www.safercare.vic.gov.au/clinical-guidance/critical/adrenaline-epinephrine#:~:text=and%20emergency%20departments.,Mechanism%20of%20action%2Fpharmacology,of%20%CE%B21%20receptor%20stimulation.> (Accessed: July 15, 2023).

Sinz E, Navarro K, Cheng A et al (2021). High performance team dynamics. In Advanced Cardiovascular life support. USA. American heart Association.