Tetracosactide (tetracosactrin)

250microgram/1mL ampoule

Note:

This guideline provides advice of a general nature. This statewide guideline has been prepared to promote and facilitate standardisation and consistency of practice, using a multidisciplinary approach. The guideline is based on a review of published evidence and expert opinion.

Information in this statewide guideline is current at the time of publication.

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Health practitioners in the South Australian public health sector are expected to review specific details of each patient and professionally assess the applicability of the relevant guideline to that clinical situation.

If for good clinical reasons, a decision is made to depart from the guideline, the responsible clinician must document in the patient's medical record, the decision made, by whom, and detailed reasons for the departure from the guideline.

This statewide guideline does not address all the elements of clinical practice and assumes that the individual clinicians are responsible for discussing care with consumers in an environment that is culturally appropriate and which enables respectful confidential discussion. This includes:

- The use of interpreter services where necessary,
- Advising consumers of their choice and ensuring informed consent is obtained,
- Providing care within scope of practice, meeting all legislative requirements and maintaining standards of professional conduct, and
- Documenting all care in accordance with mandatory and local requirements

This monograph does not include the use of tetracosactide (tetracosactrin) depot injection for infantile spasms.

Synonyms

Synacthen®, tetracosactrin, cosyntropin, corticotrophin (ACTH) analogue

Dose and Indications

Diagnosis/screening of adrenocortical insufficiency

Advice of a paediatric endocrinologist should always be sought **before** undertaking any such test in the neonatal period.

Standard dose (Short Synacthen® Test)

Intravenous

250microgram/m^2 as a single dose (maximum 125microgram)

$$BSA\ (m^2) = \sqrt{\frac{height(cm) \times weight(kg)}{3600}}$$

Low dose (Low Dose Short Synacthen® Test)

Intravenous

1microgram as a single dose, regardless of weight

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Preparation and Administration

Dose to be administered by a medical officer.

Synacthen® (250microgram/mL) packaging states for intramuscular use only, however tetracosactide (tetracosactrin) is approved for intravenous use and is widely used in clinical practice.

The Synacthen **Depot®** (1mg/mL) formulation must not be used for this indication.

Standard dose test

Intravenous

Dilute 1mL (250microgram) tetracosactide(tetracosactrin) up to 10mL with sodium chloride 0.9%. The resulting solution contains **25microgram/mL**. Give required dose as a bolus over 2 minutes.

Dose	25microgram	37.5microgram	50microgram	62.5microgram	75microgram
Volume	1mL	1.5mL	2mL	2.5mL	3mL

Low dose test

Intravenous

There are **TWO steps** to this process.

STEP ONE: Take 1mL of 250microgram/mL tetracosactide(tetracosactrin) and dilute with 49mL of 0.9% sodium chloride to make a concentration of 5microgram/mL

STEP TWO: Take 1mL of the 5microgram/mL tetracosactide(tetracosactrin) solution and dilute with 4mL 0.9% sodium chloride to make a **1microgram/mL** solution

Use immediately. Do not store solution for further use.

Give as a bolus over 2 minutes.

Compatible Fluids

Glucose 5%, sodium chloride 0.9%

Adverse Effects

Rare

Anaphylactic and hypersensitivity reactions have been reported; therefore dose should be administered under medical supervision. Most severe reactions occur within 30 minutes.

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Monitoring

- Cortisol levels (and 17OHP, if considering congenital adrenal hyperplasia) are taken immediately before the dose, 30 minutes and 60 minutes after the dose
- ACTH may be requested
- Exact time of sampling must be indicated on each sample taken

Sample	Tube/vol	Baseline (prior to dose)	30min	60min
Cortisol	Li hep/serum 1ml	X	X	X
ACTH†	EDTA 1ml on ice	X		
17OHP*	Li hep 1ml	X	X	X

† Take to the lab ASAP, * if indicated

For absolute minimum collection volumes, contact hospital laboratory

Interpretation

Standard dose test

- Peak cortisol greater than 450nmol/L is considered normal
- Normal ratio of 17-OHP to cortisol at 30mins <0.023. Ratios up to 0.08 suggest heterozygosity for 21-hydroxylase deficiency and ratios >0.1 suggest CAH

Low dose test

- Peak cortisol greater than 450nmol/L is considered normal

Practice Points

- Standard dose test represents supramaximal stimulus dosing. In the low dose test, much smaller doses are used to assess the response of the adrenal gland to a more physiological stimulus.
- Concurrent or recent use of hydrocortisone may interfere with cortisol assays - consult endocrinology for advice.

References

- Endocrine & Diabetes Unit, Women's and Children's Health Network, Adelaide, South Australia
- Bornstein S, Allolio B, Arlt W et al. Diagnosis and Treatment of Primary Adrenal Insufficiency: An Endocrine Society Clinical Practice Guideline, 2016, The Journal of Clinical Endocrinology & Metabolism, 101 (2), 361-389

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Document Ownership & History

Developed by: SA Maternal, Neonatal & Gynaecology Community of Practice
Contact: Health.NeoMed@sa.gov.au
Endorsed by: Domain Custodian, Clinical Governance, Safety and Quality
Next review due: 12/02/2024
ISBN number: 978-1-76083-590-3
CGSQ reference: **NMG048**

Policy history:
Is this a new policy (V1)? **N**
Does this policy amend or update and existing policy? **Y**
If so, which version? **V1.0**
Does this policy replace another policy with a different title? **N**
If so, which policy (title)?

Approval Date	Version	Who approved New/Revised Version	Reason for Change
17/05/2023	V1.1	Domain Custodian, Clinical Governance, Safety and Quality	Administration of Synacthen® brand via IV route (packaging states IM use only)
12/02/2019	V1	SA Health Safety and Quality Strategic Governance Committee	Original SA Health Safety and Quality Strategic Governance Committee approved version