

## Combined Calcium and Pentagastrin Stimulation Test

### Indication:

Screening for thyroid medullary cell carcinoma or to pick up C cell hyperplasia in MEN2 patients or their relatives.

### Contraindications:

None

### Precautions:

Calcium and calcitonin documented as being normal; if basal calcitonin level is already raised medullary cell carcinoma must be assumed to be present and stimulation will add little.

### Procedure:

Preparation: 1 week before test obtain accurate weight of patient. Notify lab. Inform registrar on call and obtain prescription for Calcium & Pentagastrin. Inform pharmacist of test date, pharmacist requires to site prescription and will check dose calculation.

NB pharmacy cannot supply **before 09:30 am** on day of test.

Dose calculation      Pentagastrin :            0.25mcg/kg body weight  
                                 Calcium Gluconate:    1mg/kg body weight.

- Provide patient with copy of 'C & P Test information letter' when arranging appointment.
- **Fasting from midnight, except water;** no alcohol for twelve hours preceding test.
- Patient supine throughout test. Warn of common side effects (Pentagastrin - very transient flushing, nausea and abdominal cramps, Calcium - parasthaesis.)
- Site iv. cannula (Green venflon)
- **Two nurses required for twenty minutes of test.** Doctor for iv. administration and should stay in unit throughout test.
- Record BP at each sample time (use Omron with print facility). Use electronic minute minder for accurate calculation of sample collection times.
- **Order of iv. administration:** immediately after collection of 0 sample
  - 1 Calcium Gluconate given over 1 to 2 minutes - flush with 5 mls Sodium Chloride 0.9%.
  - 2 Pentagastrin given over 5 seconds - flush with 5 mls Sodium Chloride 0.9%.
- **Collection of remaining samples timed from completion of C & P administration.**

**Sampling:** Tubes & volumes ; Calcitonin - orange (li hep) 5.5ml.

PTH - white (plain) 4ml.

Ionised Calcium - blood gas syringe 1.5ml (use Monovette adapter, fill slowly, mix well)

- Calcitonin **on ice**                            -5      0      +2      +5      +10      +20
- Ionised calcium                           -5
- PTH     -5
- At each time point discard 0.5ml blood, collected separately in 2ml syringe, prior to sample collection. Following sample collection flush cannula with Sodium Chloride.

- Calcitonin is stable for a maximum of 20 minutes hence the need to send in batches.
- Send to lab in **4 batches with cool pack** : (-5) (0 +2) (+5+10) (+20)
- Telephone lab immediately prior to sending -5 and send forms with first batch.
- **Mark each tube clearly with time of sample collection.**
- separate forms required: Regional Hormone form for Calcitonin & PTH; WGH - Ionised calcium. (see examples attached).

**Interpretation:**

Normal range : Calcitonin <15ng/l, Ionised Calcium 1.13-1.29, PTH 10- 65ng/l

Doubling of the calcitonin level is abnormal. A rise above 80ng/l is suggestive of C cell hyperplasia.

Other screening investigations for MEN2 usually include:

DNA samples - take at collection of -5 sample (4 x pink EDTA 2.7ml tubes) Genetics form.

24 hour urine collection for metanephrines - arrange at time of booking test or recording weight.

Collection returned on day of test.