### Peri-operative management of patients with neuroendocrine tumours

#### Algorithm

| Non-functioning NET | History carcinoid syndrome | Active carcinoid syndrome | Active carcinoid syndrome
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>No Octreotide required</td>
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<td>Octreotide 100ug IV On induction</td>
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<tr>
<td>Surgical / interventional Radiology procedure not related to tumours</td>
<td>Minor procedure (surgery, biopsy, ablation) to primary tumour</td>
<td>Octreotide 12.5ug/hr IV infusion 8-12 hours pre-operatively, 12-24 hours post procedure</td>
<td>Octreotide 12.5ug/hr IV infusion 8-12 hours pre-operatively, 12-24 hours post procedure</td>
</tr>
<tr>
<td>Octreotide 12.5ug/hr - octreotide 300ug in 250mls of 0.9% saline. Run at 10mls/hr.</td>
<td>Octreotide 25ug/hr – octreotide 600ug in 250mls of 0.9% saline. Run at 10mls/hr.</td>
<td>Octreotide 25ug/hr – octreotide 1200ug in 250mls of 0.9% saline. Run at 10mls/hr.</td>
<td>Octreotide 50ug/hr – octreotide 1200ug in 250mls of 0.9% saline. Run at 10mls/hr.</td>
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<tr>
<td>Octreotide 100ug IV On induction</td>
<td>Octreotide 25ug/hr IV infusion 24 hours pre-operatively, then 24-48 hours post procedure</td>
<td>Octreotide 50ug/hr IV infusion 24 hours pre-operatively, then 72 hours post procedure</td>
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#### Drugs to consider using in a carcinoid crisis:
- Hydrocortisone, ranitidine, chlorpheniramine (reduce histamine release)
- Hypotension: IV fluids; consider phenylephrine, noradrenaline or vasopressin
- Hypertension: optimise analgesia and anaesthesia (fentanyl/propofol), consider magnesium or GTN infusion in acute setting
- **AVOID DRUGS THAT CAUSE HISTAMINE OR SEROTONIN RELEASE:** thiopentone, suxamethonium, atracurium, morphine, tramadol, dopamine, isoprenaline

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There has been very little good research into peri-operative management of patients with functional neuroendocrine tumours releasing carcinoid hormones. Studies that have been done differ in their definition of what constitutes an intra-operative carcinoid crisis (mainly through differences in duration of hypo/hypertensive episodes). This has resulted in differences in opinion over benefit of peri-operative octreotide in preventing carcinoid crises.

Anaesthetists should be prepared for carcinoid crisis even in patients on octreotide prophylaxis.

Carcinoid crisis can very rarely occur in patients without prior history of carcinoid syndrome on induction of anaesthesia.

References


2. Condron ME, Pommier SJ, Pommier RF. Continuous infusion of octreotide combined with perioperative octreotide bolus does not prevent intraoperative carcinoid crisis. Surgery 2016;159:358-67
