Abstract

Aim: The case highlights a rare but important complication of hyperthyroidism

Case: A 54-year-old man was referred by his GP to AMU with dysuria/possible urinary tract infection. He also complained of dyspnoea, and feeling generally unwell. Further questioning revealed episodes of sweating, shaking and unintentional weight loss.

Past Medical History:
1- Epilepsy
2- Mild learning difficulties
3- COPD

Current Medications: primidone, furosemide, laxido, senna

Clinical Examination: 1- tremor in both hands
2- soft diffuse non-tender goitre

Observations: tachycardia

Admission blood tests

Full Blood Count:
Haemoglobin: 100 (132-169 g/L)
MCV: 82 fl (82-100fl),
WCC: 2.70 (3.7-10^9 /L),
Neutrophils: 0.7 (1.7-6.6 10^9 /L)
Platelets: 139 (150-400 10^9 /L).

Thyroid Function Tests:
TSH: 0.01 (0.38-5.5 miu/L),
Free T4: 66.7 (10-18.7 pmol/L).

Outcome/Results

Initially pancytopenia was thought to be secondary to primidone. The case was discussed with the haematology team who agreed it was likely that his pancytopenia would have been drug induced secondary to his antiepileptic medication.

However as his clinical presentation and observation suggested possible hyperthyroidism, thyroid function test was requested and the results were consistent with hyperthyroidism.

We decided to treat him with carbimazole 30 mg OD and closely monitor his full blood count.

His symptoms as well as the pancytopenia gradually improved and his blood normalised since starting on Carbimazole with no changes to his antiepileptic (primidone) medication (see table 1, graph 2&3).

Blood tests

<table>
<thead>
<tr>
<th>Table 1: change in blood results before and after starting treatment</th>
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<tbody>
<tr>
<td>Normal Range</td>
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<tr>
<td>Full Blood Count</td>
</tr>
<tr>
<td>Haemoglobin (132-169 g/L)</td>
</tr>
<tr>
<td>MCV (82 – 100 fl)</td>
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<tr>
<td>White Cell Count (3.7 – 10^9/L)</td>
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<tr>
<td>Neutrophils (1.7 – 6.6 10^9/L)</td>
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<tr>
<td>Platelets (150-400 10^9/L)</td>
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<tr>
<td>Thyroid Function</td>
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<tr>
<td>TSH (0.38-5.5 miu/L)</td>
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<tr>
<td>Free T 4 (10-18.7 pmol/L)</td>
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</table>

Graph 2: change in haemoglobin before and after treatment

Graph 3: change in WCC and neutrophils before and after treatment

Conclusion

Pancytopenia is a rare complication of hyperthyroidism. Several cases had been reported before in the literature, however the pathogenesis remains unclear. Immunological mechanisms have been suggested to be involved in the reduction of the life-span; or increased destruction of blood cells and platelets. Anti-neutrophil antibodies and anti-platelet antibodies have been detected in patients with thyrotoxicosis, as well as a reduced granulocyte reserve.

The possibility of hyperthyroidism must always be considered in patients with unexplained pancytopenia.

References