



Haematological abnormalities seen with psychotropics

The benefits of psychotropic agents outweigh the risks. Psychotropic agents are associated with haematological abnormalities, which may affect a single lineage or multiple lineages (see Table).

Psychotropic drugs are thought to cause abnormal blood cell counts through bone marrow suppression or immune-mediated destruction of mature blood cells. Abnormal blood cell counts can cause morbidity directly (e.g. symptomatic anaemia) or from complications (e.g. neutropenia complicated by sepsis).

Prompt investigation and management of haematological abnormalities is necessary.

Symptoms and signs that require further blood tests

Blood testing is indicated if an abnormality in haemoglobin, white blood cells, or platelets is suspected, and increases in cell counts are less common than decreases. Anaemia (defined as haemoglobin <130 g/L for adult males and <115 g/L for adult females) may manifest as dyspnoea, malaise, pallor, chest pain or syncope.

Leucopenia, specifically neutropenia (neutrophils <2.0 x10⁹/L), may manifest as mouth ulcers, and if infection develops, fever, rigors, and localising signs of infection may be present.

Thrombocytopenia (platelets <150 x10⁹/L) may manifest as easy bruising, petechiae, purpura, mucosal bleeding, menorrhagia, and when severe can contribute to bleeding at any site.

Diagnosis

Laboratory tests are aimed at assessing the severity of haematological abnormalities, guiding whether antibiotics or transfusion of red blood cells or platelets is necessary, and monitoring response to change in psychotropic treatment.

The full blood picture and blood film are the first step in diagnoses – providing the psychotropic agent's name on the pathology request form is helpful for the laboratory to interpret abnormal results.

Further tests depend on the blood cell lineage affected. Anaemia can be further investigated with serum iron studies, vitamin B12 and folate. For suspected haemolytic anaemia, the reticulocyte

AGENT	ABNORMALITY						
	↓Hb	↓WCC	↓Neut	↓Plt	↑WCC	↑Eo	↑Plt
Antipsychotic agents							
Chlorpromazine	•		•	•			•
Haloperidol			•		•		
Clozapine			•		•		•
Olanzapine				•	•		
Risperidone	•	•	•	•			
Antidepressants							
Amitriptyline		•	•	•			•
Nortriptyline			•	•			•
Venlafaxine	•				•		
Citalopram	•	•	•	•	•		
Sertraline	•			•			
Mirtazapine	•	•	•	•			
Antianxiety agents							
Clonazepam	•	•		•			•
Diazepam	•		•	•			
Lorazepam		•					
Oxazepam		•					
Mood stabilisers							
Carbamazepine	•		•	•	•		•
Lithium					•		
Valproic acid	•		•	•			•

Eo denotes eosinophils, Neut neutrophils, Plt platelets, WCC white cell count.

count, bilirubin, lactate dehydrogenase, haptoglobins, and the direct antiglobulin test is necessary. Pancytopenia often indicates a bone marrow biopsy. Suspect alternative causes for haematological abnormalities when the abnormality is severe, persists after dose reduction or cessation of the psychotropic agent, the patient takes other medications which can affect haematologic results, or the patient has features of a primary haematological disorder (e.g. hepatosplenomegaly, lymphadenopathy, or abnormal blood cell morphology). Referral to a haematologist is suggested in these situations.

Management

The decision to change psychotropic therapy depends on the severity of the haematological abnormality and the degree of benefit the patient is deriving from the agent. Mild, non-progressive haematological abnormalities may be monitored while the psychotropic agent is continued. Moderate-severe abnormalities, progressive abnormalities, or abnormalities that cause symptomatic disease, usually indicate a dose reduction or cessation of the psychotropic agent. Changes should be made in consultation with the managing

psychiatrist or general practitioner.

Most cases of haematologic abnormalities due to psychotropic agents resolve after stopping the offending agent.

Serious haematologic syndromes

Neutropenic sepsis, a temperature above 38°C in the presence of neutropenia, requires urgent admission to hospital for investigation and treatment with broad-spectrum intravenous antibiotics. Severe neutropenia (neutrophils <0.5 x10⁹/L) in a well patient may require granulocyte-colony stimulating factor to reduce the risk of infection. Aplastic anaemia often manifests as pancytopenia with a low reticulocyte count (less than 1%) and is treated by discontinuation of the causative agent, potentially blood transfusion, corticosteroids, granulocyte colony stimulating factor, antibiotics if there is concurrent infection, and potentially a bone marrow transplant. Psychotropic agent induced haemolytic anaemia or thrombocytopenia may be serious if the rate of destruction of red blood cells or platelets is high.

References available on request.

Main Laboratory: 310 Selby St North, Osborne Park

General Enquires: 9371 4200 Patient Results: 9371 4340

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