The Platelet Society

Hermansky-Pudlak syndrome (HPS)

What is it?

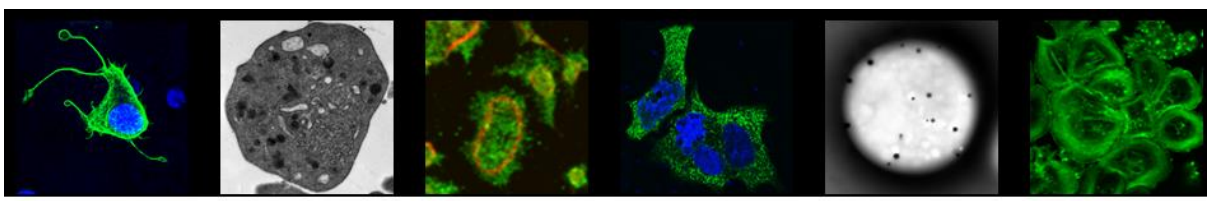
- **Hermansky-Pudlak syndrome** (**HPS**) is a group of rare mild platelet bleeding disorders, which can be diagnosed from childhood to old age.
- The first patient was diagnosed in 1959 by two Czechoslovakian pathologists, Frantisek Hermansky and Paulus Pudlak.
- **HPS** is known to be caused by mutations in 9 genes, which encode for proteins that are key components of storage granules called dense granules in platelets.
- Upon platelet activation, dense granules release chemicals such as ADP and serotonin that reinforce activation. Granules in other cells control a number of factors including hair and eye colour.
- HPS-1 is the most frequent of the **HPS** disorders with several hundred patients worldwide. HPS-1 is the most frequent genetic disorder in Puerto Rico. Several HPS mutations have been found in just one or two families (e.g. HPS-7, HPS-8 and HPS-9).

Who suffers?

- **HPS** affects males and females of all ages in approximately equal numbers. Two copies of the mutant gene are inherited (one each) from the mother and father (autosomal recessive). It is more common in families with blood relatives. In general carriers of the condition (who only have one mutated gene) do not experience clinical problems.

What are the symptoms?

- Patients with **HPS** may experience nose bleeding, easy bruising, bleeding from gums, heavy or prolonged menstrual bleeding (menorrhagia), bleeding after childbirth, abnormal bleeding after surgery or dental work, and gastrointestinal bleeding.
- Some but not all forms of **HPS** can lead to inflammation of the bowel (called granulomatous colitis) or scarring of the lungs (called pulmonary fibrosis). These typically present in patients between the ages of 40-50 and cause premature death. Patients with other forms of **HPS** have a normal life expectancy.



- Patients with **HPS** have lack of color (hypopigmentation) in the skin, hair, and eyes (oculocutaneous albinism).
- This may lead to light sensitivity (photophobia), strabismus (crossed eyes), and nystagmus (involuntary eye movements).

Diagnosis

- Patients have a normal platelet count and normal platelet size but are unable to release the contents of dense granules on activation. This can be shown by measurement of ATP or serotonin secretion: these tests are only performed in a handful of clinical test centres.
- Diagnosis is made by the absence of dense granules on electron micrographs.
- A definitive diagnosis of **HPS** is made by genetic sequencing.

Treatment and management

- Treatment should be led by and discussed with a haematologist with experience in bleeding disorders.
- Treatment is the same as other conditions where there are platelet function defects. General strategies include avoidance of medications that inhibit platelet function further (e.g. aspirin) and compression at sites of injury. Patients may be treated with antifibrinolytics (e.g. tranexamic acid) or platelet transfusion prior to surgery.
- Women with excessive menstrual bleeding (menorrhagia) can be treated with oral contraceptives. The drug desmopressin acetate (DDAVP) can also be administered to patients with excessive bleeding and has proved effective for some patients with this symptom.
- Patients should carry a bleeding disorders / haemorrhagic states card (issued by a Haemophilia Care Centre) to alert others to their condition.
- Genetic counselling may be offered.

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