IMMUNOGLOBULIN G SUBCLASSES

IgG deficiency

- ➔ Ig G is the predominant class of immunoglobulin (73% of total)
- ➔ 4 subtypes: IgG1, IgG2, IgG3, IgG4
- ➔ IgG deficiency divided into selective (associated with normal levels of IgA/E/D/M) and deficiency associated with inadequate levels of other immunoglobulins
- ➔ IgG4 deficiency is found in 20% 'normal' patients and is rarely clinically significant
- ➔ IgG2 deficiency is the most common deficiency. It can be associated with IgG4 and IgA deficiency. It is associated with recurrent infections.
- ➔ IgG subclasses 2 standard deviations below the age matched 'normals' are considered deficient. But they **may be asymptomatic and have no clinical consequences**.
- ➔ Selective deficiency can occur where there is a normal or high total IgG (e.g. in SLE, EBV, HIV).

Primary Immunodeficiency

- ➔ Usually single inherited gene disorders (80% of pts <20yrs old at diagnosis)
- ➔ Incidence 1 /10,000
- ➔ Antibody deficiency syndromes: hypogammaglobulinaemia, thymoma, x-linked agammaglobulinaemia, Di George syndrome, severe combined immunodeficiency disease

Secondary immunodeficiency

- ➔ Lymphoreticular malignancy (CLL, multiple myeloma),
- ➔ Viruses (HIV),
- ➔ Drugs (steroids, cytotoxic drugs)
- ➔ Nutritional (vit A, zinc, selenium)
- ➔ Metabolic (liver and kidney failure)
- ➔ Trauma (major surgery)
- ➔ Protein loss (nephrotic syndrome, protein losing enteropathy)

Primary and secondary immunodeficiencies present with:

- ➔ Recurrent infections, especially respiratory
- ➔ Severe, persistent, recurrent bacterial infection
- ➔ Infections which lead to complications
- ➔ Opportunistic infections: pneumocystis carinii, CMV, resistant thrush, oral ulcers, warts
- ➔ GI symptoms: diarrhoea, malabsorption, failure to thrive
- ➔ Haematological abnormalities: leucopaenia, thrombocytopaenia, haemolytic anaemia
- ➔ Neurological problems: seizures, encephalitis
- ➔ Autoimmune disease: arthralgia, vasculitis

Issues regarding testing

- There is no adult clinical immunology service in Edinburgh. The laboratory can offer guidance on results and testing but cannot offer clinical assessment or management advice. If GPs are concerned and the patient warrants further investigation, a possible approach would be to refer to specialities such as ENT (chronic sinusitis), Infectious Diseases, respiratory or paediatrics.
- Oxford handbook of clinical and laboratory investigations: There are no absolute indications for testing as significant immunodeficiency can occur in the presence of normal subclasses and conversely complete genetic absence of a subclass may be completely asymptomatic. Measurement is usually performed on patients as part of work up for recurrent infections **but would usually be done in secondary care** (e.g. respiratory for recurrent chest infections).

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