Risks and wider benefits of probenecid treatment

Probenecid is a uricosuric agent primarily used in the management of hyperuricemia associated with gout and gouty arthritis. It functions by inhibiting the renal tubular reabsorption of uric acid.

Safety and Tolerability of Probenecid

Most patients tolerate probenecid well, but some may experience side effects (Sattui & Gaffo, 2016).

Common Side Effects

- **Gastrointestinal Disturbances**: Nausea, vomiting, anorexia, and abdominal pain are the most frequently reported adverse effects.
- **Headache and Dizziness**: Mild to moderate headaches and dizziness may occur.
- **Flushing and Fever**: Occasionally reported in some patients (BOGER & STRICKLAND, 1955).
- **Drug Interactions**: Probenecid interacts with various medications, potentially altering their pharmacokinetics. These include some antibiotics, anti-inflammatory drugs, Methotrexate and HIV drugs (American Pharmacists Association & Inc, 2016).

Rare Side Effects

- **Renal Calculi (Kidney Stones)**: Increased uric acid excretion can lead to stone formation in susceptible individuals (BOGER & STRICKLAND, 1955).
- **Aplastic Anaemia and Haemolytic Anaemia**: Rare haematological disorders have been associated with probenecid (NCBI, 2004)
- **Nephrotic Syndrome**: Cases of proteinuria and nephrotic syndrome have been reported (Hertz et al., 1972)
- **Allergic Reactions**: Skin rashes, pruritus, and, rarely, severe hypersensitivity reactions like Stevens-Johnson syndrome and anaphylaxis (Hillecke, 1965).

Capital and revenue requirements for prescribing probenecid to reduce PFAS body burden

Necessary Equipment

None

Required Personnel

Any doctor can prescribe probenecid and so the service could be delivered using existing resources in primary care. It should be noted, however, that probenecid is no longer licensed in the UK. While off-label drugs can still be prescribed, some doctors may not be comfortable so doing. Some training may also be required.

Maintenance and Regulatory Compliance

No additional requirement over the status quo

Cost of prescribing probenecid to reduce PFAS body burden

Capital cost

There are no capital costs

Additional Costs to Consider

- **Training:** There may be some training costs around the safe and appropriate prescribing of probenecid. While it is likely that this could be delivered within existing resources, it would be reasonable to assume an additional cost of £5,000 per annum.
- **Drug costs:** It is difficult to assess the costs of probenecid because, as an unlicensed medicine, it no longer has a list price in the UK (which is used as a proxy for Jersey pricing). Given that volumes will be relatively low and the costs of importation will increase the effective price, it is reasonable to assume a cost per patient per year of £800.

In summary

Bringing all of this together, there is zero capital outlay. Assuming that 50 people are treated and they require twelve months of treatment each, total drug costs would be £40,000. On this basis, the maximum total programme cost, if it were fully funded, would be £45,000 per annum.

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