Pharmacogenomics: Considerations for aminoglycoside prescribing

AMT Network Event

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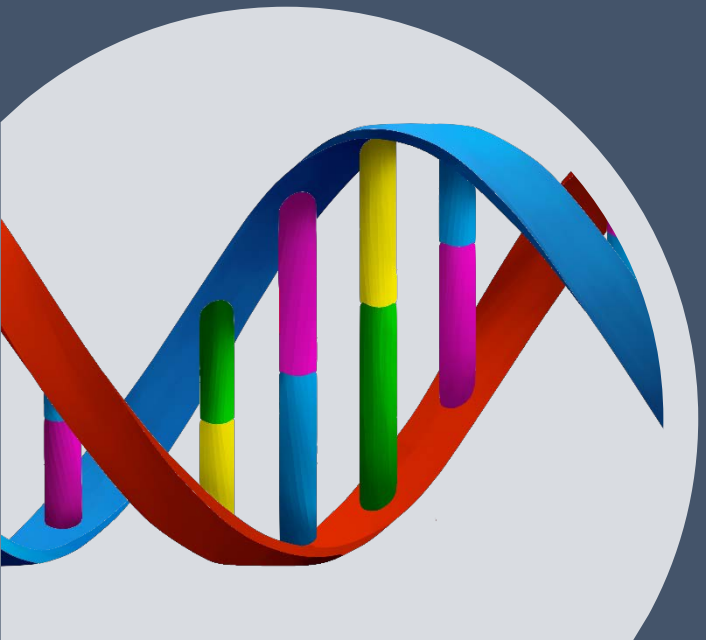

Pharmacogenomics

the influence of genes on an individuals response to medicines

Clinical applications

- Stroke medicine-clopidogrel
- Cancer chemotherapy-DPYD
- Companion diagnostics-siponimod

Key considerations for implementation

- Testing strategy – who, when, how
- Equitable access to testing
- Workforce development
- Governance/policy
- Integration of genomics data with clinical systems
- Patient engagement/information needs

The aminoglycoside story……

MHRA Drug Safety Update – Jan 2021; “Aminoglycosides: increased risk of deafness in patients with mitochondrial mutations”

m.1556G>A and ↑ risk of sensorineural deafness

Risk vs benefit – implications for clinical practice.

The m.1555G>A mutation

- Mitochondrial DNA mutation (mtDNA)
- Mutated ribosome resembles bacterial ribosome, offering binding site for AG & ↑ risk
- Most common – affects ~0.2% population
- Associated with SNHL, risk ↑ with aminoglycoside exposure
- One of at least 5 identified – association with SNHL of ototxicity

Where an aminoglycoside is required in the management of acute or life threatening infection

TREATMENT MUST NOT BE DELAYED

Search... **THE FUTURE……**

New rapid genetic test could prevent antibiotic-related hearing loss in newborns

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