**Fluoroquinolone safety – new restriction and precautions**

**Summary of safety issues reported with fluoroquinolones**

**Tendon Damage and Neuropathy**

Tendon damage (including rupture and not confined to the Achilles tendon) has been reported rarely in patients receiving fluoroquinolones. Tendon rupture may occur within 48 hours of initiation but cases have been reported several months after stopping a fluoroquinolone. Polyneuropathy and change in mood/delirium have also been reported with fluoroquinolone use. It should be noted that:

* fluoroquinolones are contra-indicated in patients with a history of tendon disorders related to fluoroquinolone or quinolone use;
* patients over 60 years of age, those with kidney disease or who have undergone organ transplantation are more prone to tendon damage and alternative antibiotics should be considered;
* concomitant corticosteroid use should be avoided as this will also increase risk of tendon rupture. Those requiring corticosteroid therapy should be informed of signs of tendonitis and monitored appropriately;

Patients should be advised to discontinue fluoroquinolone therapy immediately and seek medical advice if they develop tendon or muscle pain/inflammation, joint pain/swelling, difficulty walking or signs of neuropathy or other nervous system effects e.g. numbness/tingling, altered speech/taste/smell/hearing/vision, fatigue, depression or sleep/memory problems.

**Aortic Aneurysm**

Fluoroquinolones have been associated with a small increase in risk of aortic aneurysm and dissection which can be a life-threatening medical emergency, often requiring surgery.

* Prescribers should only initiate fluoroquinolones in patients with known aortic aneurysm following careful risk/benefit assessment.
* Elderly patients and those at risk of aortic aneurysm\* should be advised of this risk and to seek emergency medical attention if they experience sudden/severe abdominal, chest or back pain while taking a fluoroquinolone.

\* Risk factors for aortic aneurysm include males aged >66, females aged >70, COPD, coronary, cerebrovascular or peripheral artery disease, personal/family history, hyperlipidaemia, hypertension or history of current/previous smoking, Marfan syndrome, vascular Ehlers-Danlos syndrome, Takayasu arteritis, giant cell arteritis, Behcet’s disease.

**QTc Prolongation**

Fluoroquinolones are associated with QTc prolongation. Care should be taken when used in conjunction with other QTc prolonging drugs or those at risk of QTc prolongation. For further information refer to [Medicines Update Extra bulletin on drug induced QT prolongation](http://www.ggcmedicines.org.uk/blog/mue-08-drug-induced-qt-prolongation/).

***Clostridioides (Clostridium) difficile***

*Fluoroquinolones are strongly associated with the development of C.difficile infection.* Use of alternative antibiotics should be considered wherever possible in those at increased risk of *C.difficile* infection. Risk factors include; previous *C.difficile*, age >65years, significant co-morbidity, hospitalisation, previous antibiotic courses (including multi-drug regimes or prolonged courses), immunosuppression or concomitant acid suppression therapy.

**Seizures**

Fluoroquinolones are known to cause a reduction in seizure threshold. Their use should be avoided in patients with a history of a seizure disorder. Concomitant NSAID use may increase seizure risk therefore additional caution is advised.

**Drug Interactions**

Fluoroquinolones may interact with a variety of multivalent cations to form insoluble complexes within the stomach, resulting in reduced absorption and reduced serum concentrations. Many nutritional supplements and nasogastric feeds often also contain these elements. Co-administration may result in treatment failure and the development of antimicrobial resistance. As a guide, separate administration of calcium salts, iron salts, sucralfate, zinc, dairy products/enteral feeds and fluoroquinolones by 2 hours. Antacids containing aluminium or magnesium should be taken at least 2 hours before or at least 4-6 hours after a fluoroquinolone.Always refer to BNF for up-to-date guidance on individual drugs.