FLUOROQUINOLONE WARNINGS V2.0

Fluoroquinolones are very valuable broad spectrum antimicrobial agents. Examples of fluoroquinolone antibiotics include ciprofloxacin, levofloxacin, moxifloxacin and ofloxacin. One of their advantages is that they can be given by mouth. In some cases they may be the only oral agent available to treat infection with some groups of bacteria. Antimicrobial resistance to fluoroquinolones has increased in recent years and is now much more common than was the case 10 years ago. Notwithstanding the increasing resistance and the warnings outlined below, fluoroquinolones remain an important treatment option for carefully selected patients where the benefit is thought to outweigh the risk. Patients should be informed of the risks associated with fluoroquinolones prior to initiating treatment.

Adverse effects on musculoskeletal and nervous system

Fluoroquinolone antibiotics are associated with very rare but disabling and potentially long-lasting or irreversible side effects. These serious adverse effects can affect several, and sometimes multiple, systems, organ classes and senses including muscles, tendons, bones, the nervous system and the cardiovascular system.

The serious side effects include tendonitis, tendon rupture, arthralgia, pain in extremities, gait disturbance, neuropathies associated with paraesthesia, depression, fatigue, memory impairment, sleep disorders, and impaired hearing, vision, taste and smell. These adverse drug reactions have been reported in patients receiving fluoroquinolones irrespective of their age and pre-existing risk factors.

Tendonitis and tendon rupture (especially but not limited to Achilles tendon), sometimes bilateral, may occur as early as within 48 hours of starting treatment with fluoroquinolones and have been reported to occur up to several months after discontinuation of treatment. Use of fluoroquinolones in older patients, those with renal impairment, solid organ transplantation or on systemic corticosteroids increases the risk of tendon damage. Fluoroquinolones should be prescribed with particular caution in these populations.

The HPRA recommends that healthcare professionals should advise patients to urgently seek medical advice at the first signs of these adverse reactions involving muscles, tendons or bones or the nervous system (such as painful swelling and inflammation in tendons and joints, feeling pins and needles, numbness, tiredness, depression, confusion, suicidal thoughts, sleep disorders, vision and hearing problems, and altered taste and smell). Healthcare professionals should discontinue fluoroquinolone treatment and consider alternative treatment at the first sign of tendonitis, neuropathy or other serious adverse reactions. In the case of tendonitis, the affected limb(s) should be appropriately treated (e.g. immobilisation). Corticosteroids should not be used if signs of tendinopathy occur.

QT interval prolongation

As fluoroquinolones can induce QT interval prolongation, they should be used with caution in patients receiving medicines known to prolong QT interval (e.g. Class IA and III anti-arrhythmics e.g. amiodarone, tricyclic antidepressants, macrolides, antipsychotics) and in patients with known risk factors for prolongation of the QT interval. See the drugs Interaction pages for more information. For a composite list of drugs that can prolong QT interval please consult the relevant SmPC on HPRA website, the BNF or www.crediblemeds.org for further information. Consideration should be given to OTC medication a patient may be taking which can prolong QT interval e.g. domperidone.

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Risk of heart value regurgitation

Systemic (by mouth or injection) and inhaled fluoroquinolones have been associated with a small increased risk of heart valve regurgitation. Fluoroquinolones should only be used after careful benefit-risk assessment and after consideration of other therapeutic options in patients at risk for heart valve regurgitation (incompetence). Healthcare professionals should advise patients, especially those at risk, to seek urgent medical attention if they experience rapid onset of shortness of breath, swelling of the ankles, feet or abdomen or new onset palpitations. Conditions predisposing to heart valve regurgitation/incompetence include congenital or pre-existing heart valve disease, connective tissue disorders (for example Marfan syndrome or Ehlers-Danlos syndrome), Turner syndrome, Behçet's disease, hypertension, rheumatoid arthritis, and infective endocarditis.

Risk of aortic aneurysm and dissection

Due to the small increased risk of aortic aneurysm and dissection, fluoroquinolones should only be used after careful assessment of the benefits and risks in patients at risk of aneurysms and after consideration of other therapeutic options.

The recommendation is that Fluoroquinolones should not be used in the following situations:

- Patients who previously had serious side effects with a fluoroquinolone (treatment of these patients with a fluoroquinolone should only be initiated in the absence of alternative treatment options and after careful risk/benefit assessment)
- For treatment of uncomplicated self-limiting infections (for example throat infections)
- For prevention of recurring urinary tract infection
- For prevention of infection e.g. traveller's diarrhoea
- For uncomplicated lower urinary tract infection (unless guided by susceptibility testing that indicates that no safe alternative is likely to be effective)
- For mild or moderately severe infections (unless guided by susceptibility testing that indicates that no safe alternative is likely to be effective)

For patients with certain serious infections (e.g. complicated urinary tract infections) with bacteria that are susceptible to fluoroquinolones, where there is no other suitable oral option, fluoroquinolones remain an important treatment option.

Further information

- HPRA Drug Safety Update on Fluoroquinolones
- European Medicines Agency review on fluoroquinolone and quinolone -containing medicinal products
- Healthcare professionals can report any suspected adverse drug reactions to fluoroquinolones to the HPRA (https://www.hpra.ie/homepage/about-us/report-an-issue/human-adverse-reaction-form)