Information on SEROTONIN SYNDROME for Service Users and their Families

This leaflet provides general information about serotonin syndrome, a potentially serious side effect of your medication.

If you require further information, speak to your doctor, pharmacist or nurse.

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The Mersey Care Medicines Information Service¹ regularly updates this information sheet.

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What is serotonin syndrome?
Serotonin is a chemical produced naturally by the body which helps the brain and other body systems to work properly. The term ‘serotonin syndrome’ is used to describe serious serotonin poisoning or serotonin toxicity which occurs when there is far too much serotonin in the brain. Serotonin syndrome is rarely seen but it is a very serious reaction which can be life-threatening if it is not recognised and treated quickly.

What causes serotonin syndrome?
Serotonin syndrome can be caused by any substance that can increase the level or activity of serotonin in the brain such as some medications, herbal remedies and health supplements. Illegal drugs like LSD, Ecstasy, cocaine and amphetamines can also cause excessively high levels of serotonin leading to serotonin syndrome. People who are more sensitive to serotonin will have a higher risk of serotonin syndrome.

Which medicines can cause serotonin syndrome?
Medications for treating depression (antidepressants) can increase the levels of serotonin in the body and are most commonly linked with serotonin syndrome. Taking other medicines that also increase serotonin together with antidepressants can result in harmful interactions which can lead to a higher risk of serotonin syndrome.

Apart from antidepressants, other medicines that can cause serotonin syndrome include:
- Certain strong painkillers, such as tramadol, fentanyl, pethidine
- Some medicines for migraine called ‘triptans’ like sumatriptan
- Lithium, valproate, carbamazepine
- Some medicines for Parkinson’s disease, such as selegiline
- Some medicines for treating infections, such linezolid or ritonavir
- Medication for sickness and vomiting like metoclopramide, ondansetron or promethazine
- Cough remedies containing dextromethorphan
- Herbal remedies like St John’s wort or L-tryptophan

Serotonin syndrome occurs most commonly soon after starting such medication or when the treatment dose is increased or an overdose is taken. The risk of having serotonin syndrome is also greater when two substances that increase serotonin levels are taken together.

Other medicines not listed here may also cause serotonin syndrome. Always tell your doctor or pharmacist what medicines you take.
What are the symptoms of serotonin syndrome?
Symptoms of serotonin syndrome can range from mild to severe and life-threatening. They include:

- Feeling extremely agitated, irritable or restless
- Feeling confused or delirious
- Feeling extremely high (mania)
- Tremor, usually shakiness of the hands
- Muscle twitching or jerking and stiffness
- High temperature and fever
- Rapid changes in blood pressure
- Excessive sweating
- Shivering and goose bumps
- Diarrhoea
- Feeling sick or being sick
- Fast or irregular heart beat, racing pulse
- Breakdown of muscle caused by serious muscle spasms
- Fits (seizures)
- In very serious cases, passing out, going into a coma and death

What to do if you think you have serotonin syndrome
Serotonin syndrome is a medical emergency. You can get very seriously ill if you are not treated quickly. With the correct treatments, symptoms usually improve within a short time.

If you suspect that you have serotonin syndrome, you should seek immediate advice from your GP or specialist or attend the nearest hospital Accident and Emergency Department for an urgent assessment for severe symptoms. You will be given treatments to relieve the symptoms of serotonin syndrome. Medications or other substances suspected to be causing serotonin syndrome should be stopped.

Continuing with treatment after an episode of serotonin syndrome
Your doctor will review your treatment after an episode of serotonin syndrome. If you need to continue on medication, your doctor will wait until you are fully recovered before prescribing a medication with a lower risk of serotonin syndrome. You may also be able to use a lower dose of the same medication with very small and gradual increases in the dose. Always be aware of the possibility of serotonin syndrome when taking medications to treat your illness.