March 2009
QUESTION 21

Compare and contrast the mechanism of action and side effects of tricyclic antidepressants, selective serotonin reuptake inhibitors and monoamine oxidase inhibitors.

All based on the amine hypothesis of mood
- neurotransmitters especially NA and 5HT are involved in mood regulation
- mechanisms which influence their reuptake and breakdown result in mood changes
- these effects take several weeks (although there is an increase in neurotransmitters much sooner)

	TCAs	SSRIs	MAOIs
Mechanism	Inhibits the reuptake of NA and 5HT at the presynaptic terminal (amitriptyline)	Inhibits the reuptake of 5HT at the presynaptic terminal. Newer agents also block NA reuptake (venlafaxine)	Forms a stable, irreversible complex with MAO enzyme, reducing monoamine oxidation and increasing MA available for release (Phenelzine)
Other effects	Analgesic properties Sedative properties		
Side effects	Also has actions which block Na channels, alpha1 adrenoceptors muscarinic receptors histamine receptors PNS (normal doses or excess) antimuscarinic atropine like reaction mydriasis, flushed skin, dry mucosae absent bowel sounds, urinary rentention Cardiovascular (overdosage) sinus tachycardia hypertension or refractory hypotension QT prolongation Widened QRS RBBB CNS (overdosage) Brief excitement Myoclonus, tonic clonic seizure dystonia Coma respiratory depression	insomnia agitation sexual dysfunction loss of libido delayed ejaculation nausea and vomitting Incombination with other agents may precipitate a serotonin syndrome	commonly cause orthostatic hypotension, worse in elderly sexual dysfunction impotence can have anticholinergic effects may cause sedation Incombination with other agents may precipitate a serotonin syndrome