PIPADOR REVISION

MRCOG Part 1 Revision Notes

Drug Interactions

PHARMACOLOGY • LECTURE 371

VISUAL EXAMINATION REVISION NOTES

2026 Edition

371

MRCOG PART 1 REVISION NOTES | PHARMACOLOGY

Drug Interactions

Types of interactions, enzyme induction and inhibition, contraception and O&G examples

PK	PD	Inducers	CYP3A4
Absorption, metabolism, excretion	Additive/opposing effects	↓ Hormonal contraception	Most important enzyme

■ KEY FACTS: Learning objectives

- Classify drug interactions (pharmaceutical, pharmacokinetic, pharmacodynamic).
- Describe enzyme inducers and inhibitors and clinically important examples in O&G.
- Describe interactions with hormonal contraception and how to manage them.

371.1 Types of interaction

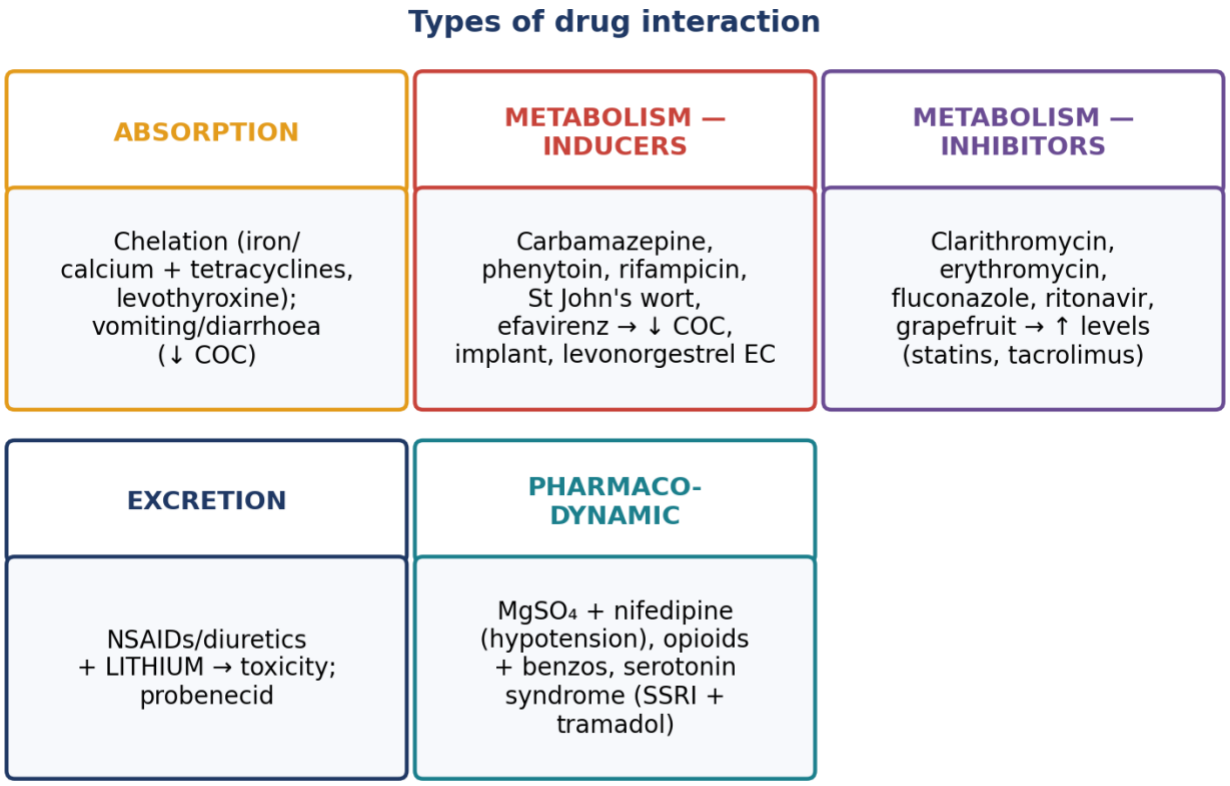


Figure 371.1 — Types of drug interaction

- **Pharmaceutical**: incompatibility in syringes/infusions (e.g. mixing drugs with blood products, calcium with bicarbonate).
- **Enzyme induction** takes days–weeks to develop and persists **≈ 4 weeks after stopping** the inducer; inhibition is rapid.
- Narrow therapeutic index drugs are most affected: warfarin, lithium, phenytoin, ciclosporin/tacrolimus, digoxin, theophylline.

371.2 Hormonal contraception

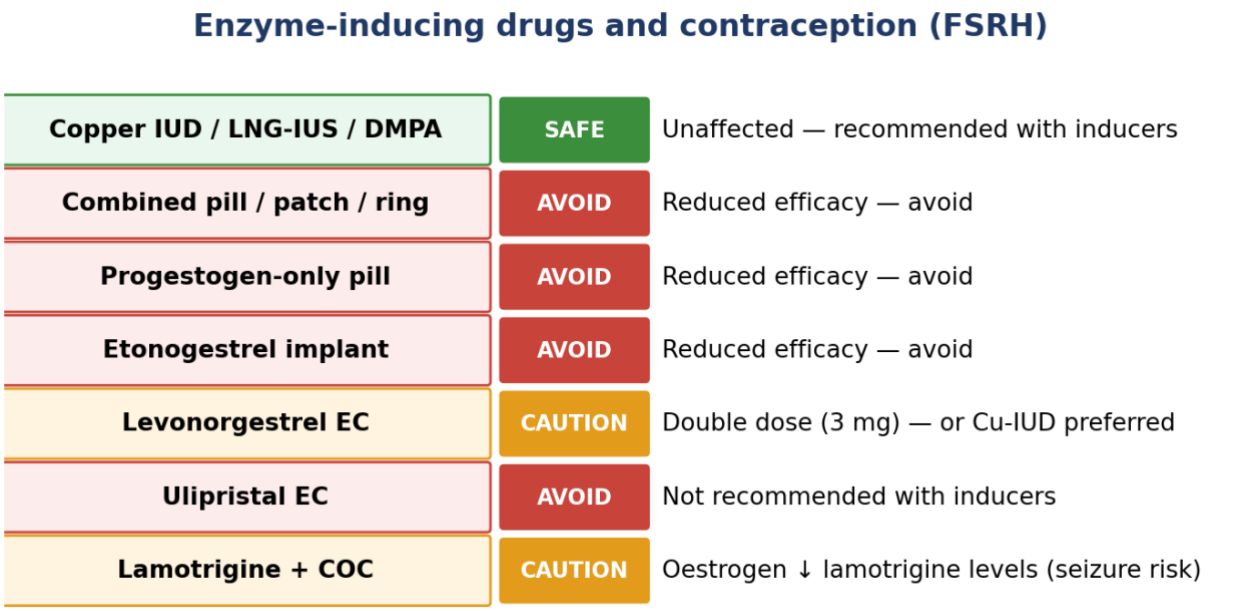


Figure 371.2 — Enzyme inducers and contraception

- Enzyme inducers: carbamazepine, oxcarbazepine, phenytoin, phenobarbital, primidone
  - Topiramate (≥ 200 mg)
  - Rifampicin/rifabutin, efavirenz
  - Ritonavir-boosted regimens (variable), St John's wort, modafinil, bosentan.
- **Non-enzyme-inducing antibiotics do not reduce COC efficacy** (FSRH) — no extra precautions needed (unless vomiting/diarrhoea).
- **Ulipristal** EC is reduced by progestogens (avoid hormonal contraception for 5 days after) and by drugs ↑ gastric pH (PPIs).

371.3 Other important O&G interactions

Combination	Consequence
$MgSO_4$ + nifedipine	Hypotension, neuromuscular blockade (theoretical) — monitor
$MgSO_4$ + aminoglycosides/neuromuscular blockers	Potentiated neuromuscular blockade
Lithium + NSAIDs/ACEi/diuretics	↑ Lithium levels — toxicity
Warfarin + antibiotics (macrolides, metronidazole, quinolones)	↑ INR — bleeding
SSRIs + tramadol/pethidine/triptans	Serotonin syndrome
Opioids + benzodiazepines/gabapentinoids	Respiratory depression
Methotrexate + trimethoprim/NSAIDs	Bone marrow toxicity
Clarithromycin + statins/tacrolimus	↑ Levels (CYP3A4 inhibition)
Ergometrine + HIV protease inhibitors	Ergotism (CYP3A4 inhibition) — use oxytocin/carboprost
Levothyroxine + iron/calcium	↓ Absorption — separate by 4 hours

371.4 Must-know summary

■ EXAM TIP

- PK (absorption, metabolism — CYP3A4 inducers/inhibitors, excretion) vs PD (additive/antagonistic).
- Inducers ↓ COC, POP, implant, levonorgestrel EC → use Cu-IUD/LNG-IUS/DMPA; effect persists 4 weeks.
- Lithium + NSAIDs; warfarin + antibiotics; SSRIs + tramadol; ergometrine + protease inhibitors.
- Ordinary antibiotics do not reduce COC efficacy.

■ MNEMONIC / MEMORY AID

CYP inducers — 'CRAPGPS': Carbamazepine, Rifampicin, Alcohol (chronic), Phenytoin, Griseofulvin, Phenobarbital, St John's wort.