Effect of chronic smoking on medication and then ceasing

Chronic cigarette smoking can interact with some medications. This primarily due stimulation of the liver metabolising enzyme CYP1A2 which metabolises a number of important polycyclic aromatic hydrocarbons as well as some medications. CYP1A2 accounts for 15% of the total cytochromes present in the liver. There is also significant intra and interindividual variation in metabolic activity of 1A2.

Medication levels that smoking could affect 1A2 activity?

Some interactions with medications are not considered clinically significant but the potential for interaction should be noted if the smoking status of the patient varies. Since the majority of the interactions are due to the aromatic carbons rather than the nicotine, these interactions should not be seen when a patient is initiated onto nicotine replacement therapy (NRT)

Medications with clinically significant impact

1. warfarin - this is not clinically relevant to most patients but physician monitoring the INR should be made aware
2. theophylline – smokers need higher doses than non smokers, so ceasing smoking could lead to theophylline toxicity. Dose should be lowered and monitored
3. chlorpromazine – smokers have lower serum levels than non smokers. Abrupt stopping of smoking could cause increased adverse effects such as dizziness, sedation and extrapyramidal effects so dose should eb adjusted.
4. clozapine – smokers metabolise the drug faster so serum levels can be lower in smokers. Monitoring of clozapine levels is recommended whilst stopping smoking as lower doses would be required.
5. Olanzapine – higher doses are needed in smokers so stopping smoking would need reduction in doses to prevent adverse effects
6. Insulin – smoking is associated with poor glycaemic control so smokers need higher doses of insulin. Stopping smoking doses of insulin may need adjusting. This mechanism of interaction is unclear.

Other medications but not considered clinically significant.

1. melatonin – increased effects of melatonin when stopping smoking
2. benzodiazepines – reports of enhanced effect after stopping smoking, thus may need to reduce dose
3. fluphenazine – studies indicate some smokers have increased clearance thus stopping smoking may need for dose reduction
4. haloperidol – studies indicated increased clearance in smokers, thus increase in adverse effects on stopping, dose reduction maybe necessary

5. tricyclic antidepressants – serum levels are lower in smokers but concentration of free drug rises, be aware of possibility of increased adverse effects.
6. fluvoxamine – plasma levels maybe lower in smokers, smokers needing higher doses than non smokers. Be aware of increased adverse effects on stopping.
7. sulphonylureas – theoretical due to poor glycaemic control in smokers. Dose may need to be adjusted when stop smoking.
8. duloxetine – plasma levels decreased with smoking so monitor for adverse effects when ceasing smoking
9. Mirtazapine – effect unclear but reports to monitor adverse effects
10. carbamazepine – smoking can decrease plasma levels so monitor plasma levels and adverse effects when ceasing smoking
11. caffeine- plasma levels increased with smoking

This list is not complete but patients should be aware when ceasing medication after chronically smoking there could be affects on their medication blood levels and thus there might also be a need for dose adjustments.

References:

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