Minoxidil Tablets

Background Information	Minoxidil tablets can be used for the treatment of severe hypertension in addition to a diuretic and a beta blocker. It acts mainly by causing direct peripheral vasodilation of the arterioles leading to reduced vascular resistance and lowering of systolic and diastolic blood pressures. It produces effects on the cardiovascular system similar to those of hydralazine. It should NOT be used as the sole agent to initiate therapy. It is a peripheral vasodilator and should be given in conjunction with a diuretic to control salt and water retention, and a beta-adrenergic blocking agent (or appropriate substitute) to control reflex tachycardia.
BNF therapeutic class	2.5.1.1 Vasodilator antihypertensives
Indication	Treatment of severe hypertension
Dosage and administration	Adult Initially 5 mg daily in 1–2 divided doses, then increased in steps of 5–10 mg, increased at intervals of at least 3 days; maximum 100 mg per day. Elderly Initially 2.5 mg daily in 1–2 divided doses, then increased in steps of 5–10 mg, increased at intervals of at least 3 days; maximum 100 mg per day.
Cautions and Contraindications	**Contraindications:** Phaeochromocytoma, since the drug's hypotensive effects may stimulate secretion of catecholamines from the tumour. Patients with galactose intolerance, the Lapp lactose deficiency or glucose-galactose malabsorption should not take this medicine. **Pregnancy:** Possible toxicity including reduced placental perfusion. (Also contraindicated in women of childbearing potential not using contraception). Neonatal hirsutism reported. **Breast feeding:** Minoxidil is excreted in breast milk and risk to suckling child cannot be excluded. **Cautions:** Acute porphyrias, after a recent myocardial infarction (until stabilised), angina pectoris and significant renal impairment.
Adverse Drug Reactions	Hypertrichosis and hair colour changes (develops in most patients within 3-6 weeks of starting treatment, but is slowly reversible on cessation of therapy); tachycardia, pericarditis and ECG alterations in approx 60% of patients starting minoxidil therapy. Pericardial effusion, sometimes with associated tamponade, has been reported in about 3% of patients. Rare: Leucopenia; Skin reactions; Stevens-Johnson syndrome; thrombocytopenia. Frequency not known: Angina pectoris, breast tenderness; GI disturbances; pleural effusion; reversible rise in blood creatinine and urea; sodium retention, weight gain

***Amber with Guidance**= To be initiated and titrated to a stable dose in secondary care with follow up prescribing and monitoring by primary care where deemed appropriate.*

Monitoring	The patient's **bodyweight, fluid and electrolyte balance** should be monitored for evidence of fluid retention. Salt and water retention in excess of 1-1.5kg may diminish the effectiveness of minoxidil. Patients should, therefore, be checked for concordance to diuretic therapy and a detailed record of body weight should be maintained. Note: After starting minoxidil therapy, approximately 60% of patients exhibit ECG alterations in the direction and magnitude of their T waves. Large changes may encroach on ST segment, unaccompanied by evidence of ischemia. These asymptomatic changes usually disappear with continuing minoxidil treatment. The ECG reverts to the pre-treatment state when minoxidil is discontinued.
Interactions	The effect of minoxidil may be additive to concurrent antihypertensive agents and other agents with blood pressure lowering effects. The interaction of minoxidil with sympathetic-blocking agents such as guanethidine or betanidine may produce excessive blood pressure reduction and/or orthostatic hypotension. If possible guanethidine should be discontinued well before minoxidil is started. If this is not feasible, minoxidil therapy should be instituted in the hospital and the patient monitored carefully for orthostatic events.

Contact names and details

Contact Name	Telephone number	Email
Dr Naeem Tahir Consultant Cardiologist	01226 730000	**naeem.tahir@nhs.net**
Dr Uma Velupandian Consultant Cardiologist	01226 730000	**uma.velupandian@nhs.net**
Dr A Negahban Consultant Cardiologist	01226 730000	**a.negahban@nhs.net**
Dr Zamvar Deoraj Consultant Cardiologist	01226 730000	**deoraj.zamvar@nhs.net**
Dr David Robinson Consultant Cardiologist	01226 730000	**d.robson1@nhs.net**
Specialist Cardiac nurses Apollo Court Medical Practice	01226 209881	
Gillian Turrell Medicines Information Pharmacist	01226 432857	**gilliansmith2@nhs.net**

References

- British National Formulary. 30th July 2020. Available at: https://bnf.nice.org.uk/drug/minoxidil.html Accessed: 31/08/20
- Minoxidil (Loniten®). Summary of Product Characteristics. 19th June 2018. Available at: https://www.medicines.org.uk/emc/product/4294/smpc Accessed: 31/08/20

Development Process

This guideline was developed following an AMBER-G (Amber with guidance) classification status of minoxidil for the treatment of severe hypertension by the Barnsley Area Prescribing Committee. This information has been subject to consultation and endorsement by the Cardiologists in Barnsley and was ratified at the Area Prescribing Committee on 13th January 2021.