Fingolimod Tillomed Physician's Checklist

Summary of Recommendations

For full prescribing information, please also refer to the Summary of Product Characteristics (SmPC) for fingolimod Tillomed available via www.hpra.ie

Reporting suspected adverse reactions after authorisation of the medicinal product is important. It allows continued monitoring of the benefit/ risk balance of the medicinal product.

Healthcare professionals are asked to report any suspected adverse reactions via HPRA Pharmacovigilance at www.hpra.ie.

Side effects can also be reported to Tillomed Pharmacovigilance department by calling +44 (0)800 9706115 or by emailing medical.information@tillomed.com

These educational materials fulfil the conditions of the marketing authorisation and have been approved by the Health Products Regulatory Authority (HPRA).

Considerations for fingolimod patient selection

Fingolimod is suitable for adult and paediatric patients (≥10 years old) for the treatment of highly active relapsing remitting multiple sclerosis (RRMS)*.

Considerations for treatment initiation

Fingolimod is contraindicated in patients with cardiac conditions. Do not initiate fingolimod in patients with a cardiac condition or who are taking medicinal products for which fingolimod is contraindicated.

Fingolimod causes transient heart rate reduction and may cause atrioventricular (AV)conduction delays following initiation of treatment. All patients should be monitored for a minimum of 6 hours on treatment initiation.

Monitoring requirements

Consider patients with the following conditions only after performing risk/benefit analysis and consulting a cardiologist.

Sino-atrial heart block, history of symptomatic bradycardia or recurrent syncope, significant QT-interval prolongation†, history of cardiac arrest, uncontrolled hypertension or severe sleep apnea.

• At least overnight extended monitoring is recommended
• Consult cardiologist regarding appropriate first-dose monitoring

Taking beta-blockers, heart-rate–lowering calcium channel blockers‡, or other substances that are known to lower the heart rate§.
• Consult cardiologist regarding possibility of switching to non-heart- rate-lowering drugs
• If change in medication is not possible, extend monitoring to at least overnight
• Ensure patients are not concomitantly taking Class Ia or Class III antiarrhythmic medicines

This procedure should also be followed in paediatric patients when the dosage is switched from 0.25 mg to 0.5 mg fingolimod once daily*.

It should also be followed at re-initiation of treatment if fingolimod is discontinued for:
• One day or longer within the first 2 weeks of treatment
• More than 7 days during weeks 3 and 4
• More than 2 weeks after the first month of treatment

Monitor for a minimum of 6 hours

After first dose and when re-initiating following discontinuation

- Perform baseline ECG and BP measurement

- Monitor for a minimum of 6 hours for signs and symptoms of bradycardia, with hourly pulse and BP checks. If patient is symptomatic, continue monitoring until resolution• Continuous (real-time) ECG is recommended throughout the 6-hour period
- Perform ECG at 6 hours

Treatment initiation algorithm

Did the patient require pharmacologic intervention at any time during the monitoring period?	yes →	Monitor overnight in a medical facility. The first-dose monitoring should be repeated after the second dose of fingolimod
Did third-degree AV block occur at any time during the monitoring period?	yes →	Extend monitoring at least overnight, until the findings have resolved
At the end of the monitoring period, did any of the following occur? HR <45 bpm, <55 bpm in paediatric patients aged ≥12 years old, or <60 bpm in paediatric patients aged 10 to <12 years	yes →	Extend monitoring at least overnight, until the findings have resolved
At the end of the monitoring period, is the HR the lowest since the first dose was administered?	yes →	Extend monitoring by at least 2 hours and until the heart rate increases

First-dose monitoring is complete

*Fingolimod is indicated as single disease modifying therapy in highly active relapsing remitting multiple sclerosis for the following groups of adult patients and paediatric patients aged 10 years and older: patients with highly active disease despite a full and adequate course of treatment with at least one disease modifying therapy, or patients with rapidly evolving severe relapsing remitting multiple sclerosis defined by 2 or more disabling relapses in one year, and with 1 or more Gadolinium enhancing lesions on brain MRI or a significant increase in T2 lesion load as compared to a previous recent MRI.

BP=blood pressure; ECG=electrocardiogram;
HR=heart rate; QTc=heart-rate-corrected QT interval.

† QTc >470 msec (adult females), >460 msec (paediatric females), or >450 msec (adult and paediatric males).
‡ Includes verapamil or diltiazem.
§ Includes Class Ia and Class III antiarrhythmics, ivabradine, digoxin, anticholinesteratic agents, or pilocarpine.

Recommendations for managing patients on fingolimod

Key safety assessments and considerations before, during and after discontinuing treatment.

Prior to initiating treatment	
☐	Fingolimod is contraindicated in patients with severe liver impairment (Child-Pugh class C). Do not initiate fingolimod in patients with this condition
☐	Obtain recent (within 6 months) transaminase, and bilirubin levels
☐	Fingolimod is contraindicated in patients with immunodeficiency syndrome, increased risk for opportunistic infections including immunocompromised patients or severe active or active chronic infections (i.e. hepatitis or tuberculosis). Do not initiate fingolimod in patients with any of these conditions
☐	Delay initiation of treatment in patients with severe active infection until resolved
☐	Human papilloma virus (HPV) infection, including papilloma, dysplasia, warts and HPV-related cancer, has been reported in the post-marketing setting. Cancer screening (including a Pap test), and vaccination for HPV-related cancer is recommended for patients as per standard of care
☐	Do not treat with fingolimod in patients with suspected or confirmed progressive multifocal leukoencephalopathy (PML)
☐	Check varicella zoster virus (VZV) antibody status in patients without a healthcare professional confirmed history of chickenpox or documentation of a full course of varicella vaccination. If negative, a full course of vaccination with varicella vaccine is recommended and treatment initiation should be delayed for 1 month to allow full effect of vaccination to occur
☐	Obtain recent (within 6 months or after discontinuation of prior therapy) full blood count
☐	Inform women of childbearing potential (including female adolescents and their parents/caregivers) that fingolimod is contraindicated in pregnant women and women of childbearing potential not using effective contraception, and about the serious risks of fingolimod to a fetus
☐	Fingolimod is teratogenic. A negative pregnancy test must be confirmed in women of child-bearing potential (including female adolescents) prior to starting treatment and repeat at suitable intervals during treatment
☐	Counsel women of child-bearing potential (including female adolescents and their parents/caregivers) that they must avoid pregnancy and use effective contraception both during treatment and for 2 months after treatment discontinuation. Counselling should be facilitated by the Pregnancy-Specific Patient Reminder Card
☐	Provide all patients, parents (or legal representatives) and caregivers with the Pregnancy-Specific Patient Reminder Card

☐	Conduct an ophthalmologic evaluation in patients with history of uveitis or diabetes mellitus
☐	Conduct a dermatologic examination. The patient should be referred to a dermatologist if suspicious lesions, potentially indicative of basal cell carcinoma or other cutaneous neoplasms (including malignant melanoma, squamous cell carcinoma, Kaposi's sarcoma and Merkel cell carcinoma), are detected
☐	Avoid co-administration of anti-neoplastic, immunomodulatory or immunosuppressive therapies due to the risk of additive immune system effects. For the same reason, a decision to use prolonged concomitant treatment with corticosteroids should be taken after careful consideration
☐	Ensure patients have a baseline MRI usually within 3 months before initiating fingolimod
☐	Provide patients, parents and caregivers with the Patient, Parent and Caregiver Guide

During treatment	
☐	Some cases of acute liver failure requiring liver transplant and clinically significant liver injury have been reported • In the absence of clinical symptoms: – Check liver transaminases and serum bilirubin at months 1, 3, 6, 9, and 12 on therapy and periodically thereafter until 2 months after fingolimod discontinuation – If liver transaminases are greater than 3 but less than 5 times the upper limit of normal (ULN) without increase in serum bilirubin, more frequent monitoring including serum bilirubin and alkaline phosphatase (ALP) measurements should be carried out to determine if further increases occur, and in order to discern if an alternative aetiology of liver dysfunction is present. – Discontinue fingolimod if liver transaminases are at least 5 times the ULN or at least 3 times the ULN associated with any increase in serum bilirubin. Hepatic monitoring should be continued. Restart fingolimod only after careful benefit-risk consideration.
☐	For patients with clinical symptoms of liver dysfunction, evaluate promptly and discontinue fingolimod if significant liver injury is confirmed. If serum levels return to normal (including if an alternative cause of the liver dysfunction is discovered), fingolimod may be restarted based on a careful benefit-risk assessment of the patient.
☐	Counsel patients to report signs and symptoms of infection immediately to their prescriber during, and for up to 2 months after, treatment • Symptoms such as fever, flu-like symptoms, headache accompanied by stiff neck, sensitivity to light, nausea, shingles and/or confusion, or seizures may be symptoms of meningitis and/or encephalitis

	• Perform prompt diagnostic evaluation in patients with symptoms and signs consistent with encephalitis, meningitis or meningoencephalitis and initiate appropriate treatment if diagnosed – Serious, life-threatening, and sometimes fatal cases of encephalitis, meningitis or meningoencephalitis caused by herpes simplex virus (HSV) and VZV were reported while on fingolimod treatment. – Reports of cryptococcal meningitis (sometimes fatal) have been received after approximately 2–3 years of treatment, although an exact relationship with the duration of treatment is unknown. • Fingolimod should be discontinued in patients with CNS herpes and infections. fingolimod should be suspended in patients with cryptococcal meningitis with careful consideration with a specialist before reinitiating. • Inform patients that during fingolimod treatment, they should not receive live attenuated vaccines and that other vaccines may be less effective . • PML has been predominantly observed after 2 or more years of fingolimod treatment. • Annual MRIs may be considered especially in patients with multiple risk factors generally associated with PML. • If PML is suspected, perform a diagnostic MRI immediately and suspend fingolimod until PML has been excluded. Permanently discontinue fingolimod if PML is confirmed. • Immune reconstitution inflammatory syndrome (IRIS) has been reported in patients treated with S1P receptors modulators, including fingolimod, who developed PML and subsequently discontinued treatment. The time to onset of IRIS in patients with PML was usually from weeks to months after S1P receptor modulator discontinuation. Monitoring for development of IRIS and appropriate treatment of the associated inflammation should be undertaken • For potentially serious infection, evaluate the patient promptly and consider an infectious disease referral. Consider suspending fingolimod and the benefit-risk of any subsequent reinitiation. • Symptoms such as fever, flu-like symptoms, headache accompanied by stiff neck, sensitivity to light, nausea, shingles and/or confusion or seizures may be symptoms of meningitis and/or encephalitis.
☐	While on treatment, women should not become pregnant. Discontinue treatment if a woman becomes pregnant. Fingolimod should be stopped 2 months before attempting to become pregnant, and the possible return of disease activity should be considered. An ultrasonography examination should be performed and medical advice about the harmful effects of fingolimod to a fetus should be provided.
☐	Advise women of child-bearing potential (including female adolescents and their parents/caregivers) that effective contraception must be used during treatment and for at

	least 2 months after treatment discontinuation. Pregnancy tests must be repeated at suitable intervals.
☐	Women of child-bearing potential (including female adolescents and their parents/legal representatives/caregivers) must be informed regularly about the serious risks of fingolimod to a fetus.
☐	To help determine the effects of fingolimod exposure in pregnant women with MS, physicians are encouraged to report pregnant patients who may have been exposed to fingolimod at any time during pregnancy (from 8 weeks prior to last menstrual period onward) to Tillomed by emailing pvuk@tillomed.com
☐	Monitor peripheral blood lymphocyte counts prior to and during treatment with fingolimod. Interrupt treatment for lymphocyte count <0.2x109/L* until recovery.
☐	Obtain an ophthalmologic assessment in all patients: • 3-4 months after starting treatment for the early detection of visual impairment due to drug-induced macular oedema • Discontinue fingolimod in patients who develop macular oedema. Restart only after careful benefit-risk consideration.
☐	Vigilance for basal cell carcinoma and other cutaneous neoplasms is recommended with skin examination every 6 to 12 months and referral to a dermatologist if suspicious lesions are detected • Caution patients against exposure to sunlight without protection • Instruct patients to avoid concomitant phototherapy with UV-B-radiation or PUVA-photochemotherapy
☐	Reassess on an annual basis the benefit of fingolimod treatment versus risk in each patient.

Summary guidance specifically for paediatric patients

All warnings and precautions and monitoring in adults also apply to paediatric patients. In addition:

Prior to initiating treatment

☐	Ensure that vaccination status is up to date before starting fingolimod
☐	Assess physical development (Tanner staging), and measure height and weight, as per standard of care

During treatment	
☐	Perform first-dose monitoring on treatment initiation due to the risk of bradyarrhythmia
☐	Repeat first-dose monitoring in paediatric patients when the dosage is switched from 0.25 mg to 0.5 mg fingolimod once daily*
☐	Emphasize the importance of treatment compliance to patients, especially with regard to treatment interruption and the need to repeat first-dose monitoring
☐	Monitor the patient for signs and symptoms of depression and anxiety

* For paediatric patients (≥10 years old), the approved dosing for fingolimod® is 0.25 mg once daily for patients weighing ≤40 kg, and 0.5 mg once daily for patients weighing >40 kg.