FULSTRAVID Solution for Injection in Pre-filled Syringe 250mg/5mL

VIFULxx-02 (MY)

DESCRIPTION
The drug product FULSTRAVID Solution for Injection in Pre-filled Syringe 250mg/5mL is a clear, colorless to yellow, viscous solution. FULSTRAVID Solution for Injection in Pre-filled Syringe 250mg/5mL is filled in a pre-filled syringe. Each carton contains two pre-filled syringes and two safety needles.

COMPOSITION
One pre-filled syringe contains 250mg fulvestrant in 5mL solution.
Excipients: Ethanol (96%), benzyl alcohol, benzyl benzoate and castor oil.

PHARMACODYNAMICS
Fulvestrant is a competitive oestrogen receptor (ER) antagonist with an affinity comparable to oestradiol. Fulvestrant blocks the trophic actions of oestrogens without any partial agonist (oestrogen-like) activity. The mechanism of action is associated with downregulation of oestrogen receptor protein levels.

PHARMACOKINETICS
Absorption
After administration of fulvestrant long-acting intramuscular injection, fulvestrant is slowly absorbed and maximum plasma concentrations (Cmax) are reached after about 5 days. Administration of fulvestrant 500 mg regimen achieves exposure levels at, or close to, steady state within the first month of dosing (mean [CV]: AUC 475 [33.4%] ng.days/ml, Cmax 25.1 [35.3%] ng/ml, Cmin 16.3 [25.9%] ng/ml, respectively). At steady state, fulvestrant plasma concentrations are maintained within a relatively narrow range with up to an approximately 3-fold difference between maximum and trough concentrations. After intramuscular administration, the exposure is approximately dose proportional in the dose range 50 to 500 mg.

Distribution
Fulvestrant is subject to extensive and rapid distribution. The large apparent volume of distribution at steady state (Vdss) of approximately 3 to 5 l/kg suggests that distribution is largely extravascular. Fulvestrant is highly (99%) bound to plasma proteins. Very low density lipoprotein (VLDL), low density lipoprotein (LDL), and high density lipoprotein (HDL) fractions are the major binding components. No interaction studies were conducted on competitive protein binding. The role of sex hormone-binding globulin (SHBG) has not been determined.

Biotransformation
The metabolism of fulvestrant has not been fully evaluated, but involves combinations of a number of possible biotransformation pathways analogous to those of endogenous steroids. Identified metabolites (includes 17-ketone, sulphone, 3-sulphate, 3- and 17-glucuronide metabolites) are either less active or exhibit similar activity to fulvestrant in antioestrogen models.

Elimination
Fulvestrant is eliminated mainly in metabolised form. The major route of excretion is via the faeces, with less than 1% being excreted in the urine. Fulvestrant has a high clearance, 11±1.7 ml/min/kg, suggesting a high hepatic extraction ratio. The terminal half-life (t1/2) after intramuscular administration is governed by the absorption rate and was estimated to be 50 days.

Special populations
In a population pharmacokinetic analysis of data from Phase 3 studies, no difference in fulvestrant's pharmacokinetic profile was detected with regard to age (range 33 to 89 years), weight (40-127 kg) or race.

Renal impairment
Mild to moderate impairment of renal function did not influence the pharmacokinetics of fulvestrant to any clinically relevant extent.

Hepatic impairment
The pharmacokinetics of fulvestrant has been evaluated in a single-dose clinical study conducted in women with mild to moderate hepatic impairment (Child-Pugh class A and B). A high dose of a shorter duration intramuscular injection formulation was used. There was up to about 2.5-fold increase in AUC in women with hepatic impairment compared to healthy subjects. In patients administered fulvestrant, an increase in exposure of this magnitude is 30 expected to be well tolerated. Women with severe hepatic impairment (Child-Pugh class C) were not evaluated.

Paediatric population
The pharmacokinetics of fulvestrant has been evaluated in a clinical study conducted in 30 girls with Progressive Precocious Puberty associated with McCune Albright Syndrome (see section Pharmacodynamic Properties). The paediatric patients were aged 1 to 8 years and received 4 mg/kg monthly intramuscular dose of fulvestrant. The geometric mean (standard deviation) steady state trough concentration (Cmin,ss) and AUCss was 4.2 (0.9) ng/mL and 3680 (1020) ng*hr/mL, respectively. Although the data collected were limited, the steady-state trough concentrations of fulvestrant in children appear to be consistent with those in adults.

INDICATIONS
Fulvestrant is indicated:
- As monotherapy for the treatment of estrogen receptor positive, locally advanced or metastatic breast cancer in postmenopausal women:
  - Who are human epidermal growth factor receptor 2 (HER2)-negative and not previously treated with endocrine therapy.
  - With disease relapse on or after adjuvant endocrine therapy, or disease progression on endocrine therapy.
- In combination with ribociclib for the treatment of hormone receptor (HR)-positive, human epidermal growth factor receptor 2 (HER2)-negative advanced or metastatic breast cancer in postmenopausal women, as initial endocrine based therapy or following disease progression on endocrine therapy.*
- In combination with abemaciclib for the treatment of women with hormone receptor (HR)-positive, human epidermal growth factor receptor 2 (HER2)-negative advanced or metastatic breast cancer with disease progression following endocrine therapy.*
- In combination with palbociclib for the treatment of hormone receptor (HR)-positive, human epidermal growth factor receptor 2 (HER2)-negative locally advanced or metastatic breast cancer in women who have received prior endocrine therapy.*

In pre- or perimenopausal women, the combination treatment with palbociclib or abemaciclib should be combined with a luteinizing hormone releasing hormone (LHRH) agonist.

* This indication only applicable in markets where palbociclib, ribociclib or abemaciclib are registered.

ROUTE OF ADMINISTRATION
Intramuscular (IM)

RECOMMENDED DOSAGE
Adult females (including the elderly)
The recommended dose is 500 mg at intervals of one month, with an additional 500 mg dose given two weeks after the initial dose.

When fulvestrant is used in combination with palbociclib, abemaciclib or ribociclib, please also refer to the Summary of Product Characteristics of palbociclib, abemaciclib or ribociclib.

Prior to the start of treatment with the combination of fulvestrant plus palbociclib or abemaciclib, and throughout its duration, pre/perimenopausal women should be treated with LHRH agonists according to local clinical practice.

Special populations
Paediatric patient:
The safety and efficacy of fulvestrant in children from birth to 18 years of age have not been established. Currently available data are described in sections Pharmacodynamic Properties and Pharmacokinetic Properties, but no recommendation on a posology can be made.

Renal impairment:
No dose adjustments are recommended for patients with mild to moderate renal impairment (creatinine clearance ≥ 30 ml/min). Safety and efficacy have not been evaluated in patients with severe renal impairment (creatinine clearance < 30 ml/min) and, therefore, caution is recommended in these patients.

Hepatic impairment:
No dose adjustments are recommended for patients with mild to moderate hepatic impairment. However, as fulvestrant exposure may be increased, fulvestrant should be used with caution in these patients. There are no data in patients with severe hepatic impairment.

Method of administration
Fulvestrant should be administered as two consecutive 5 ml injections by slow intramuscular injection (1-2 minutes/injection), one in each buttock (gluteal area).

Caution should be taken if injecting Fulvestrant at the dorsogluteal site due to the proximity of the underlying sciatic nerve.

For detailed instructions for administration, see method of administration and disposal.

METHOD OF ADMINISTRATION
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Instruction for Intramuscular Use:
Administer the injection according to the local guidelines for performing large volume intramuscular injections.

NOTE: Due to the proximity of the underlying sciatic nerve, caution should be taken if administering fulvestrant at the dorsogluteal injection site.

Warning - Do not autoclave safety needle (BD SafetyGlide™ Safety Hypodermic Needle) before use. Hands must remain behind the needle at all times during use and disposal.

For each of the two syringes:
1. Remove glass syringe barrel from tray and check that it is not damaged.
2. Peel open the safety needle SafetyGlide™ outer packaging.
3. Parenteral solutions must be inspected visually for particulate matter and discolouration prior to administration.
4. Hold the syringe upright on the ribbed part (C). With the other hand, take hold of the cap (A) and carefully twist the cap counter-clockwise until the cap disconnects for removal (see Figure 1).
5. Remove the cap (A) in a straight upward direction. To maintain sterility do not touch the syringe tip (B) (see Figure 2).
6. Attach the safety needle to the Luer-Lok and twist until firmly seated (see Figure 3).
7. Check that the needle is locked to the Luer connector before moving out of the vertical plane.
8. Pull shield straight off needle to avoid damaging needle point.
9. Transport filled syringe to point of administration.
10. Remove needle sheath.
11. Expel excess gas from the syringe.

Figure 1

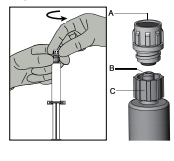


Figure 2

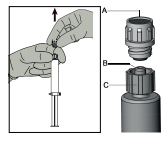
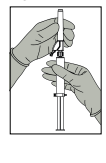


Figure 3



12. Administer intramuscularly slowly (1-2 minutes/injection) into the buttock (gluteal area). For user convenience, the needle bevel- up position is oriented to the lever arm (see Figure 4).
13. After injection, immediately apply a single-finger stroke to the activation assisted lever arm to activate the shielding mechanism (see Figure 5).

Figure 4

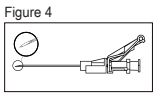
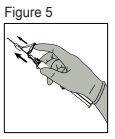


Figure 5



NOTE: Activate away from self and others. Listen for click and visually confirm needle tip is fully covered.

Disposal
Pre-filled syringes are for single use only.
This medicine may pose a risk to the aquatic environment. Any unused medicinal product or waste material should be disposed of in accordance with local requirements.

CONTRAINDICATIONS
- Hypersensitivity to the active substance, or to any of the other excipients
- Pregnancy and lactation
- Severe hepatic impairment

WARNING AND PRECAUTIONS
Fulvestrant should be used with caution in patients with mild to moderate hepatic impairment.

Fulvestrant should be used with caution in patients with severe renal impairment (creatinine clearance less than 30 ml/min).

Due to the intramuscular route of administration, fulvestrant should be used with caution if treating patients with bleeding diatheses, thrombocytopenia or those taking anticoagulant treatment.

Thromboembolic events are commonly observed in women with advanced breast cancer and have been observed in clinical studies with fulvestrant. This should be taken into consideration when prescribing fulvestrant to patients at risk.

Injection site related events including sciatica, neuralgia, neuropathic pain and peripheral neuropathy have been reported with fulvestrant injection. Caution should be taken while administering fulvestrant at the dorsogluteal injection site due to the proximity of the underlying sciatic nerve.

There are no long-term data on the effect of fulvestrant on bone. Due to the mechanism of action of fulvestrant, there is a potential risk of osteoporosis.

The efficacy and safety of fulvestrant (either as monotherapy or in combination with palbociclib) have not been studied in patients with critical visceral disease.

When fulvestrant is combined with palbociclib, please also refer to the product insert of palbociclib.

Interference with estradiol antibody assays
Due to the structural similarity of fulvestrant and estradiol, fulvestrant may interfere with antibody based-estradiol assays and may result in falsely increased levels of estradiol.

Paediatric population
Fulvestrant is not recommended for use in children and adolescents as safety and efficacy have not been established in this group of patients.

As this preparation contains benzyl alcohol, its use should be avoided in children under two years of age.

Not to be used in neonates.

INTERACTION WITH OTHER MEDICINAL PRODUCTS AND OTHER FORMS OF INTERACTION
There is no clinically relevant change in fulvestrant clearance when administered with other medications, dose adjustment is therefore not necessary in patients who are receiving fulvestrant and CYP3A4 inhibitors or inducers concomitantly.

PREGNANCY AND LACTATION
Women of childbearing potential
Patients of childbearing potential should use effective contraception during treatment with fulvestrant and for 2 years after the last dose.

Pregnancy
Fulvestrant is contraindicated in pregnancy. If pregnancy occurs while taking fulvestrant, the patient must be informed of the potential hazard to the foetus and potential risk for loss of pregnancy.

Breast-feeding
Breast-feeding must be discontinued during treatment with fulvestrant. Fulvestrant is excreted in milk in lactating rats. It is not known whether fulvestrant is excreted in human milk. Considering the potential for serious adverse reactions due to fulvestrant in breast-fed infants, use during lactation is contraindicated.

SIDE EFFECTS
Adverse reactions listed below are classified according to frequency and System Organ Class (SOC). Frequency groupings are defined according to the following convention: Very common (≥1/10), Common (≥1/100 to <1/10), Uncommon (≥1/1,000 to <1/100). Within each frequency grouping, adverse reactions are reported in order of decreasing seriousness.

Adverse Drug Reactions reported in patients treated with fulvestrant monotherapy.

Adverse reactions by system organ class and frequency		
Infections and infestations	Common	Urinary tract infections
Blood and lymphatic system	Common	Reduced platelet count[e]
Immune system disorders	Very common	Hypersensitivity reactions[e]
	Uncommon	Anaphylactic reactions
Metabolism and nutrition disorders	Common	Anorexia[a]
Nervous system disorders	Common	Headache
Vascular disorders	Very common	Hot flushes[e]
	Common	Venous thromboembolisma
Gastrointestinal disorders	Very common	Nausea
	Common	Vomiting, diarrhoea
Hepatobiliary disorders	Very common	Elevated hepatic enzymes (ALT, AST, ALP)[a]
	Common	Elevated bilirubin[a]
	Uncommon	Hepatic failure[c,f], hepatitis[f], elevated gamma-GT[f]
Skin and subcutaneous tissue disorders	Very common	Rash[e]
Muscoloskeletal and connective tissue disorders	Very common	Joint and musculoskeletal pain[d]
	Common	Back pain[a]
Reproductive system and breast disorders	Common	Vaginal haemorrhage[e]
	Uncommon	Vaginal moniliasis[f], leukorrhea[f]
General disorders and administration site conditions	Very common	Astheniaa, injection site reactions[b]
	Common	Neuropathy peripheral[e], sciatica[e]
	Uncommon	Injection site haemorrhage[f], injection site harmatoma[f], neuralgia[c,f]

[a] Includes adverse drug reactions for which the exact contribution of fulvestrant cannot be assessed due to the underlying disease.
[b] The term injection site reactions does not include the terms injection site haemorrhage, injection site harmatoma, sciatica, neuralgia and neuropathy peripheral.
[c] The frequency had been calculated using the upper limit of the 95% confidence interval for the point estimate.
[d] Includes: arthralgia, and less frequently musculoskeletal pain, myalgia and pain in extremity.
[e] Frequency category differs between pooled safety dataset and studies done by innovator.
[f] ADR was not observed in study done by innovator.

OVERDOSE
There are isolated reports of overdose with fulvestrant in humans. If overdose occurs, symptomatic supportive treatment is recommended.

INCOMPATIBILITIES
In the absence of compatibility studies, this medicinal product must not be mixed with other medicinal products.

STORAGE
Store and transport at a temperature of 2°C-8°C.

Store the pre-filled syringe in the original package in order to protect from light.

DOSAGE FORM AND PACKAGING AVAILABLE
FULSTRAVID Solution for Injection in Pre-filled Syringe 250mg/5mL is supplied as two 5 mL colorless transparent pre-filled syringe barrel made of borosilicate glass with luer tip and tip cap, enclosed with grey fluropolymer coated bromobutyl rubber plunger (5mL). Each pre-filled syringe containing 250 mg/5 mL of fulvestrant injection solution for intramuscular injection and is NOT fitted with a tamper evident closure.

The single-dose pre-filled syringes are presented in a tray with polystyrene plunger rod and safety needles for connection to the barrel.

Product Registration Holder: **Hovid Berhad.**
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