

# NEW ZEALAND DATA SHEET

## MARVELON® 28

Desogestrel plus ethinyloestradiol

### Name of Medicine

Marvelon 28

Tablets

Desogestrel 0.15 mg; ethinyloestradiol 0.03 mg

### Presentation

Each pack of Marvelon 28 consists of:

- 21 large (6 mm diameter), white, round, biconvex tablets coded TR/5 on one side, and ORGANON and a star on the other side, and containing desogestrel (a progestogen) 0.15 mg, ethinyloestradiol (an oestrogen) 0.03 mg.
- 7 small (4.5 mm diameter), white, round, flat tablets with bevelled edges, coded KH/2 on one side and a square on the other side, and containing no active ingredients.

### Uses

#### **Actions**

ATC Classification G03A A09

Marvelon 28 is a combined oral contraceptive preparation for continuous administration containing as active substances the oestrogen ethinyloestradiol and the progestogen desogestrel. Clinical studies have revealed that the oral contraceptive preparations containing ethinyloestradiol and desogestrel lack undesirable metabolic effects. These effects are thought to result from the androgenic activity of some progestogens in oral contraceptives. Because of this, Marvelon 28 may have a favourable effect on androgen-related skin disorders such as acne and hirsutism. When taken according to the recommended dosage scheme Marvelon 28 suppresses the hypophyseal gonadal function and thereby ovulation.

The contraceptive effect of COCs is based on the interaction of various factors, the most important of which are seen as the inhibition of ovulation and the changes in the cervical secretion. As well as protection against pregnancy, COCs have several positive properties which, next to the negative properties (see **Warnings and Precautions** and **Adverse Effects**), can be useful in deciding on the method of birth control. The cycle is more regular and the menstruation is often less painful and bleeding is lighter. The latter may result in a decrease in the occurrence of iron deficiency. Apart from this, there is evidence of a reduced risk of endometrial cancer and ovarian cancer. Furthermore, the higher dosed COCs (0.050 mg ethinyloestradiol) have been shown to reduce the incidence of ovarian cysts, pelvic inflammatory disease, benign breast disease and ectopic pregnancy. Whether this also applies to lower-dosed COCs remains to be confirmed.

## Pharmacokinetics

### Desogestrel

**Absorption:** Orally administered desogestrel is rapidly and completely absorbed and converted to etonogestrel. Peak serum concentrations of approximately 2 ng/mL are reached at about 1.5 hours after single ingestion. Bioavailability is 62-81%.

**Distribution:** Etonogestrel is bound to serum albumin and to sex hormone binding globulin (SHBG). Only 2-4% of the total serum medicine concentrations are present as free steroid, 40-70% are specifically bound to SHBG. The ethinyloestradiol-induced increase in SHBG influences the distribution over the serum proteins, causing an increase of the SHBG-bound fraction and a decrease of the albumin-bound fraction. The apparent volume of distribution of desogestrel is 1.5 L/kg.

**Metabolism:** Etonogestrel is completely metabolised by the known pathways of steroid metabolism. The metabolic clearance rate from serum is about 2 mL/min/kg. No interaction was found with the co-administered ethinyloestradiol.

**Elimination:** Etonogestrel serum levels decrease in two phases. The terminal disposition phase is characterised by a half-life of approximately 30 hours. Desogestrel and its metabolites are excreted at a urinary to biliary ratio of about 6:4.

**Steady-State Conditions:** Etonogestrel pharmacokinetics are influenced by SHBG levels, which are increased threefold by ethinyloestradiol. Following daily ingestion, medicine serum levels increase about two- to threefold, reaching steady state conditions during the second half of the treatment cycle.

### Ethinyloestradiol

**Absorption:** Orally administered ethinyloestradiol is rapidly and completely absorbed. Peak serum concentrations of about 80 pg/mL are reached within 1-2 hours. Absolute bioavailability as a result of pre-systemic conjugation and first-pass metabolism is approximately 60%.

**Distribution:** Ethinyloestradiol is highly but non-specifically bound to serum albumin (approximately 98.5%) and induces an increase in the serum concentrations of SHBG. An apparent volume of distribution of about 5 L/kg was determined.

**Metabolism:** Ethinyloestradiol is subject to pre-systemic conjugation in both small bowel mucosa and the liver. Ethinyloestradiol is primarily metabolised by aromatic hydroxylation but a wide variety of hydroxylated and methylated metabolites are formed, and these are present as free metabolites and as conjugates with glucuronides and sulphate. The metabolic clearance rate is about 5 mL/min/kg.

**Elimination:** Ethinyloestradiol serum levels decrease in two disposition phases, the terminal disposition phase is characterised by a half-life of approximately 24 hours. Unchanged medicine is not excreted; ethinyloestradiol metabolites are excreted at a urinary to biliary ratio of 4:6. The half-life of metabolite excretion is about 1 day.

**Steady-State Conditions:** Steady state concentrations are reached after 3-4 days when serum medicine levels are higher by 30-40% as compared to single dose.

## Indications

Oral contraception.

Treatment of moderate to mild acne and symptoms of other androgenic skin disorders.

## **Dosage and Administration**

### **How to take Marvelon 28**

Tablets must be taken in the order directed on the package every day at about the same time with some liquid as needed. One tablet is to be taken daily, starting with the large (active) tablets for 21 consecutive days followed by the small (placebo) tablets for 7 days. Each subsequent pack is started immediately following the last placebo tablet. During the placebo days a withdrawal bleed usually occurs. This usually starts on day 2-3 after the last active tablet and may not have finished before the next pack is started.

### **How to start taking Marvelon 28**

*No preceding hormonal contraceptive use (in the past month)*

Tablet-taking has to start on day 1 of the woman's natural cycle (i.e. the first day of her menstrual bleeding). Starting on days 2-5 is allowed, but during the first cycle a barrier method is recommended in addition for the first 7 days of tablet-taking.

*Changing from a combined hormonal contraceptive (combined oral contraceptive (COC), vaginal ring, or transdermal patch)*

The woman should start with Marvelon 28 preferably on the day after the last active tablet (the last tablet containing the active substances) of her previous COC, but at the latest on the day following the usual tablet-free or placebo tablet interval of her previous COC. In case a vaginal ring or transdermal patch has been used, the woman should start using Marvelon 28 preferably on the day of removal, but at the latest when the next application would have been due.

If the woman has been using her previous method consistently and correctly and it is reasonably certain that she is not pregnant she may also switch from her previous combined hormonal contraceptive on any day of the cycle.

The hormone-free interval of the previous method should never be extended beyond its recommended length.

*Changing from a progestogen-only method (minipill, injection, implant) or from a progestogen-releasing intrauterine system (IUS)*

The woman may switch any day from the minipill (from an implant or the IUS on the day of its removal, from an injectable when the next injection would be due), but should in all of these cases be advised to additionally use a barrier method for the first 7 days of tablet-taking.

*Following first-trimester abortion*

The woman may start immediately. When doing so, she need not take additional contraceptive measures.

*Following delivery or second-trimester abortion*

For breastfeeding women see **Use During Pregnancy and Lactation**.

Women should be advised to start at day 21 to 28 after delivery or second-trimester abortion. When starting later, the woman should be advised to additionally use a barrier method for the first 7 days of tablet-taking. However, if intercourse has already occurred, pregnancy should be excluded before the actual start of COC use or the woman has to wait for her first menstrual period.

## Management of missed tablets

If the user is **less than 12 hours late** in taking any tablet, contraceptive protection is not reduced. The woman should take the tablet as soon as she remembers and should take further tablets at the usual time.

If she is **more than 12 hours late** in taking any active tablet, contraceptive protection may be reduced. The management of missed tablets can be guided by the following two basic rules:

1. 'active tablet'-taking must never be discontinued for longer than 7 days.
2. 7 days of uninterrupted 'active tablet'-taking are required to attain adequate suppression of the hypothalamic-pituitary-ovarian-axis.

Accordingly, the following advice can be given in daily practice:

- **Week 1 (Active tablets 1 to 7)**

The user should take the last missed tablet as soon as she remembers, even if this means taking two tablets at the same time. She then continues to take tablets at her usual time. In addition, a barrier method such as a condom should be used for the next 7 days. If intercourse took place in the preceding 7 days, the possibility of a pregnancy should be considered. The more tablets are missed and the closer they are to the regular placebo tablet interval, the higher the risk of a pregnancy.
- **Week 2 (Active tablets 8 to 14)**

The user should take the last missed tablet as soon as she remembers, even if this means taking two tablets at the same time. She then continues to take tablets at her usual time. Provided that the woman has taken her tablets correctly in the 7 days preceding the first missed tablet, there is no need to use extra contraceptive precautions. However, if this is not the case, or if she missed more than 1 tablet, the woman should be advised to use extra precautions for 7 days.
- **Week 3 (Active tablets 15 to 21)**

The risk of reduced reliability is imminent because of the forthcoming placebo tablet interval. However, by adjusting the tablet-intake schedule, reduced contraceptive protection can still be prevented. By adhering to either of the following two options, there is therefore no need to use extra contraceptive precautions, provided that in the 7 days preceding the first missed tablet the woman has taken all tablets correctly. If this is not the case, the woman should be advised to follow the first of these two options and to use extra precautions for the next 7 days as well.

  1. The user should take the last missed tablet as soon as she remembers, even if this means taking two tablets at the same time. She then continues to take tablets at her usual time. The next pack must be started as soon as the active tablets in the current pack are finished, i.e. no placebo tablets should be taken. The user is unlikely to have a withdrawal bleed until the placebo tablet interval of the second pack, but she may experience spotting or breakthrough bleeding on 'active tablet'-taking days.
  2. The woman may also be advised to discontinue 'active tablet'-taking from the current pack. She should then immediately continue with the placebo tablets. The total number of missed tablets and placebo tablets must never exceed seven. Subsequently she should continue with the next pack.
- **Week 4 (Placebo/inert tablets)**

Contraceptive protection is not reduced, the woman should take further tablets at the usual time.

If the woman missed active tablets and subsequently has no withdrawal bleed in the first normal placebo tablet interval, the possibility of a pregnancy should be considered.

### **Advice in case of gastrointestinal disturbances**

In case of severe gastrointestinal disturbance, absorption may not be complete and additional contraceptive measures should be taken.

If vomiting occurs within 3-4 hours after tablet-taking, the advice concerning missed tablets, see **Management of missed tablets**, is applicable. If the woman does not want to change her normal tablet-taking schedule, she has to take the extra tablet(s) needed from another pack.

### **How to shift periods or how to delay a period**

To delay a period the woman should continue with another pack of Marvelon 28 without having a placebo tablet interval. The extension can be carried on for as long as wished until the end of the second pack. During the extension the woman may experience breakthrough bleeding or spotting. Regular intake of Marvelon 28 is then resumed after the usual 7-day placebo tablet interval.

To shift her period to another day of the week than the woman is used to with her current scheme, she can be advised to shorten her forthcoming placebo tablet interval by as many days as she likes. The shorter the interval, the higher the risk that she does not have a withdrawal bleed and will experience breakthrough bleeding and spotting during the second pack (just as when delaying a period).

### **Contraindications**

Combined oral contraceptives (COCs) should not be used in the presence of any of the conditions listed below. Should any of the conditions appear for the first time during COC use, the product should be stopped immediately.

- Presence or history of venous thrombosis (deep venous thrombosis, pulmonary embolism)
- Presence or history of arterial thrombosis (myocardial infarction, cerebrovascular accident) or prodromal conditions (e.g. transient ischaemic attack, angina pectoris).
- History of migraine with focal neurological symptoms (see **Warnings and Precautions**).
- Diabetes mellitus with vascular involvement.
- The presence of a severe or multiple risk factor(s) for venous or arterial thrombosis may also constitute a contraindication (see **Warnings and Precautions**).
- Pancreatitis or a history thereof if associated with severe hypertriglyceridaemia.
- Presence or history of severe hepatic disease as long as liver function values have not returned to normal.
- Presence or history of liver tumours (benign or malignant).
- Known or suspected sex steroid-influenced malignancies (e.g. of the genital organs or the breasts).
- Undiagnosed vaginal bleeding.
- Known or suspected pregnancy.

- Hypersensitivity to any of the active substances in Marvelon 28 or to any of the excipients.
- Hereditary or acquired predisposition for venous or arterial thrombosis (e.g. APC resistance, hyperhomocysteinaemia, antithrombin-III deficiency, protein C deficiency, protein S deficiency, antiphospholipid antibodies (anticardiolipin antibodies, lupus anticoagulant)).
- Endometrial hyperplasia.
- Porphyria.
- Hyperlipoproteinaemia, especially in the presence of other risk factors predisposing to cardiovascular disorders.
- A history during pregnancy or previous use of steroids of severe pruritus or herpes gestationis.
- Otosclerosis with deterioration in previous pregnancies.

Relative contraindications (see **Warnings and Precautions**):

- Hypertension
- Cardiac or renal dysfunction
- Epilepsy
- Depression

### **Warnings and Precautions**

If any of the conditions/risk factors mentioned below is present, the benefits of COC use should be weighed against the possible risks for each individual woman and discussed with the woman before she decides to start using it. In the event of aggravation, exacerbation or first appearance of any of these conditions or risk factors, the woman should contact her physician. The physician should then decide on whether COC use should be discontinued.

#### 1. Circulatory Disorders

- Epidemiological studies have suggested an association between the use of COCs and an increased risk of arterial and venous thrombotic and thromboembolic diseases such as myocardial infarction, stroke, deep venous thrombosis, and pulmonary embolism. These events occur rarely.
- The use of any COC is associated with an increased risk of venous thromboembolism (VTE) manifesting as deep venous thrombosis and/or pulmonary embolism. The risk is highest during the first year a woman ever uses a COC.
- Some epidemiological studies have suggested that women using low-dose COCs with third generation progestogens, including desogestrel, have an increased risk of VTE compared with those using low-dose COCs with the progestogen levonorgestrel. These studies indicate an approximate 2-fold increase in risk, which would correspond to an additional 1-2 cases of VTE per 10,000 women years of use. However, data from other studies have not shown this 2-fold increase in risk.
- Overall, the incidence of VTE in users of low oestrogen dose (<0.05 mg ethinyloestradiol) OCs is considered to be up to 4 per 10,000 women years

compared to 0.5-3 per 10,000 women years in non-OC users. The incidence of VTE occurring during COC use is less than the incidence associated with pregnancy (i.e. 6 per 10,000 pregnant women years).

- Extremely rarely, thrombosis has been reported to occur in other blood vessels, e.g. hepatic, mesenteric, renal, cerebral or retinal veins and arteries, in COC users. There is no consensus as to whether the occurrence of these events is associated with the use of COCs.
- Symptoms of venous or arterial thrombotic/thromboembolic events or of a cerebrovascular accident can include: unilateral leg pain and/or swelling; sudden severe pain in the chest, whether or not it radiates to the left arm; sudden breathlessness; sudden onset of coughing; any unusual, severe, prolonged headache; sudden partial or complete loss of vision; diplopia; slurred speech or aphasia; vertigo; collapse with or without focal seizure; weakness or very marked numbness suddenly affecting one side or one part of the body; motor disturbances; 'acute' abdomen.
- The risk of venous thromboembolism increases with:
  - increasing age;
  - a positive family history (i.e. venous thromboembolism ever in a sibling or parent at a relatively early age). If a hereditary predisposition is suspected, the woman should be referred to a specialist for advice before deciding about any hormonal contraceptive use;
  - obesity (body mass index over 30 kg/m<sup>2</sup>);
  - prolonged immobilisation, major surgery, any surgery to the legs, or major trauma. In these situations it is advisable to discontinue COC use (in the case of elective surgery at least four weeks in advance) and not to resume until two weeks after complete remobilisation.
  - and possibly also with superficial thrombophlebitis and varicose veins. There is no consensus about the possible role of varicose veins and superficial thrombophlebitis in venous thromboembolism.
- The risk of arterial thromboembolic complications increases with:
  - increasing age;
  - smoking (with heavier smoking and increasing age the risk further increases, especially in women over 35 years of age);
  - dyslipoproteinaemia;
  - obesity (body mass index over 30 kg/m<sup>2</sup>)
  - hypertension;
  - migraine;
  - valvular heart disease;
  - atrial fibrillation;
  - a positive family history (i.e. arterial thrombosis ever in a sibling or parent at a relatively early age). If a hereditary predisposition is suspected, the woman should be referred to a specialist for advice before deciding about any hormonal contraceptive use.
- The increased risk of thromboembolism in the puerperium must be considered (for further information see **Use During Pregnancy and Lactation**).
- Other medical conditions which have been associated with adverse circulatory events include: diabetes mellitus, systemic lupus erythematosus, haemolytic uraemic syndrome, chronic inflammatory bowel disease (Crohn's disease or ulcerative colitis) and sickle cell disease.

- An increase in frequency or severity of migraine during COC use (which may be prodromal of a cerebrovascular event) may be a reason for immediate discontinuation of the COC.
- Biochemical factors that may be indicative of hereditary or acquired predisposition for venous or arterial thrombosis include Activated Protein C (APC) resistance, hyperhomocysteinaemia, antithrombin-III deficiency, protein C deficiency, protein S deficiency, antiphospholipid antibodies (anticardiolipin antibodies, lupus anticoagulant).
- When considering risk/benefit, the physician should take into account that adequate treatment of a condition may reduce the associated risk of thrombosis and that the risk associated with pregnancy is higher than that associated with low-dose COCs (<0.05 mg ethinyloestradiol).

## 2. Tumours

- The most important risk factor for cervical cancer is persistent human papilloma virus (HPV) infection. Epidemiological studies have indicated that long-term use of COCs contributes to this increased risk but there continues to be uncertainty about the extent to which this finding is attributable to confounding effects, like cervical screening and difference in sexual behaviour including use of barrier contraceptives, or a causal association.
- A meta-analysis from 54 epidemiological studies reported that there is a slightly increased relative risk (RR = 1.24) of having breast cancer diagnosed in women who are currently using COCs. The excess risk gradually disappears during the course of the 10 years after cessation of COC use. Because breast cancer is rare in women under 40 years of age, the excess number of breast cancer diagnoses in current and recent COC users is small in relation to the overall risk of breast cancer. These studies do not provide evidence for causation. The observed pattern of increased risk may be due to an earlier diagnosis of breast cancer in COC users, the biological effects of COCs or a combination of both. The breast cancers diagnosed in ever-users tend to be less advanced clinically than the cancers diagnosed in never-users.
- In rare cases, benign liver tumours, and even more rarely, malignant liver tumours have been reported in users of COCs. In isolated cases, these tumours have led to life-threatening intra-abdominal haemorrhages. A hepatic tumour should be considered in the differential diagnosis when severe upper abdominal pain, liver enlargement or signs of intra-abdominal haemorrhage occur in women taking COCs.

## 3. Other conditions

- Women with hypertriglyceridaemia, or a family history thereof, may be at an increased risk of pancreatitis when using COCs.
- Although small increases in blood pressure have been reported in many women taking COCs, clinically relevant increases are rare. A relationship between COC use and clinical hypertension has not been established. However, if a sustained clinically significant hypertension develops during the use of a COC then it is prudent for the physician to withdraw the COC and treat the hypertension. Where considered appropriate, COC use may be resumed if normotensive values can be achieved with antihypertensive therapy.

- The following conditions have been reported to occur or deteriorate with both pregnancy and COC use, but the evidence of an association with COC use is inconclusive: jaundice and/or pruritus related to cholestasis; gallstone formation; porphyria; systemic lupus erythematosus; haemolytic uraemic syndrome; Sydenham's chorea; herpes gestationis; otosclerosis-related hearing loss; (hereditary) angioedema.
- Acute or chronic disturbances of liver function may necessitate the discontinuation of COC use until markers of liver function return to normal. Recurrence of cholestatic jaundice which occurred first during pregnancy or previous use of sex steroids necessitates the discontinuation of COCs.
- Although COCs may have an effect on peripheral insulin resistance and glucose tolerance, there is no evidence for a need to alter the therapeutic regimen in diabetics using low-dose COCs (containing <0.05 mg ethinyloestradiol). However, diabetic women should be carefully observed while taking COCs.
- Crohn's disease and ulcerative colitis have been associated with COC use.
- Chloasma may occasionally occur, especially in women with a history of chloasma gravidarum. Women with a tendency to chloasma should avoid exposure to the sun or ultraviolet radiation whilst taking COCs.
- Patients with a history of depression should be carefully observed during the use of oestrogen-containing oral contraceptives as depression may occasionally occur. If this is accompanied by a disturbance of tryptophan metabolism, administration of vitamin B6 might be of therapeutic value. The medicine should be discontinued if serious depression recurs.
- Patients with the following conditions should be monitored:
  - latent or overt cardiac failure, renal dysfunction, hypertension, epilepsy, diabetes, or migraine (or a history of these conditions), since aggravation or recurrence may occasionally be induced
  - oestrogen-sensitive gynaecological disorders, e.g. uterine fibromyomata which may increase in size, and endometriosis which may become aggravated during oestrogen treatment.
- Marvelon 28 contains < 80 mg lactose per tablet. Patients with rare hereditary problems of galactose intolerance, the Lapp lactase deficiency or glucose-galactose malabsorption who are on lactose-free diet should take this amount into consideration.

When counselling the choice of contraceptive method(s), all the above information should be taken into account.

### **Medical Examination/Consultation**

Prior to the initiation or reinstatement of Marvelon 28 a complete medical history (including family history) should be taken and pregnancy must be ruled out. Blood pressure should be measured and if clinically indicated a physical examination should be performed, guided by the contraindications and warnings and precautions (see **Contraindications** and **Warnings and Precautions**). The woman should also be instructed to carefully read the user leaflet and to adhere to the advice given. The frequency and nature of further periodic checks should be based on established practice guidelines and be adapted to the individual woman.

Women should be advised that oral contraceptives do not protect against HIV infections (AIDS) and other sexually transmissible diseases.

### Reduced Efficacy

The efficacy of COCs may be reduced in the event of e.g. missed tablets (see **Management of missed tablets**), gastrointestinal disturbances (see **Advice in case of gastrointestinal disturbances**) or concomitant medication (see **Interactions**).

### Reduced Cycle Control

With all COCs, irregular bleeding (spotting or breakthrough bleeding) may occur, especially during the first months of use. Therefore, the evaluation of any irregular bleeding is only meaningful after an adaptation interval of about three cycles.

If bleeding irregularities persist or occur after previously regular cycles, then non-hormonal causes should be considered and adequate diagnostic measures are indicated to exclude malignancy or pregnancy. These may include curettage.

In some women withdrawal bleeding may not occur during the tablet-free interval. If the COC has been taken according to the directions described in **Dosage and Administration**, it is unlikely that the woman is pregnant. However, if the COC has not been taken according to these directions prior to the first missed withdrawal bleed or if two withdrawal bleeds are missed, pregnancy must be ruled out before COC use is continued.

### Use During Pregnancy and Lactation

Marvelon 28 is not indicated during pregnancy. If pregnancy occurs during treatment with Marvelon 28, further intake should be stopped. However, most epidemiological studies have revealed neither an increased risk of birth defects in children born to women who used COCs prior to pregnancy, nor a teratogenic effect when COCs were taken inadvertently during early pregnancy.

Lactation may be influenced by COCs as they may reduce the quantity and change the composition of breast milk. Therefore, the use of COCs should generally not be recommended until the nursing mother has completely weaned her child. Small amounts of the contraceptive steroids and/or their metabolites may be excreted with the milk, but there is no evidence that this adversely affects infant health.

### Effects on Ability to Drive and Use Machines

No effects on ability to drive and use machines have been observed.

### Adverse Effects

Possibly related adverse effects that have been reported in users of Marvelon 28 or COCs in general are listed in the table below<sup>1</sup>:

System Organ Class	Common (>1/100)	Uncommon (> 1/1000 and < 1/100)	Rare (< 1/1000)
Immune system disorders			Hypersensitivity
Metabolism and nutrition disorders		Fluid retention	
Psychiatric disorders	Depressed mood, mood altered	Libido decreased	Libido increased
Nervous system disorders	Headache	Migraine	

Eye disorders			Contact lens intolerance
Gastrointestinal disorders	Nausea, abdominal pain	Vomiting, diarrhoea	
Skin and subcutaneous tissue disorders		Rash, urticaria	Erythema nodosum, erythema multiforme
Reproductive system and breast disorders	Breast pain, breast tenderness	Breast enlargement	Vaginal discharge, breast discharge
Investigations	Weight increased		Weight decreased

<sup>1</sup> The most appropriate MedDRA term (version 11.0) to describe a certain adverse reaction is listed. Synonyms or related conditions are not listed, but should be taken into account as well.

A number of adverse effects have been reported in women using combined oral contraceptives, which are discussed in more detail in the section, **Warnings and Precautions**. These include: venous thromboembolic disorders; arterial thromboembolic disorders; hypertension; hormone-dependent tumours (e.g. liver tumours, breast cancer); chloasma.

### **Interactions**

Interactions between oral contraceptives and other medicines may lead to breakthrough bleeding and/or oral contraceptive failure. The following interactions have been reported in the literature:

*Hepatic metabolism:* Interactions can occur with medicines that induce microsomal enzymes, which can result in increased clearance of sex hormones (e.g. hydantoins, barbiturates, primidone, carbamazepine, rifampicin, and possibly also oxcarbazepine, topiramate, felbamate, ritonavir, griseofulvin and products containing St John's wort). Maximal enzyme induction is generally not seen for 2-3 weeks but may then be sustained for at least 4 weeks after the cessation of drug therapy.

Contraceptive failures have also been reported with antibiotics, such as ampicillin and tetracyclines. The mechanism of this effect has not been elucidated.

Women on treatment with any of these medicines should temporarily use a barrier method in addition to the COC, or choose another method of contraception. With microsomal enzyme-inducing medicines, the barrier method should be used during the time of concomitant medicine administration and for 28 days after their discontinuation. In case of long-term treatment with microsomal enzyme-inducing medicines another method of contraception should be considered. Women on treatment with antibiotics (except rifampicin and griseofulvin, which also act as microsomal enzyme-inducing medicines) should use the barrier method until 7 days after discontinuation. If the period during which the barrier method is used runs beyond the end of the active tablets in the COC pack, the next COC pack should be started without the usual placebo tablet interval.

Oral contraceptives may affect the metabolism of other medicines. Accordingly, plasma and tissue concentrations may either increase (e.g. cyclosporin) or decrease (e.g. lamotrigine).

Note: The prescribing information of concomitant medications should be consulted to identify potential interactions.

### **Laboratory Tests**

The use of contraceptive steroids may influence the results of certain laboratory tests, including biochemical parameters of liver, thyroid, adrenal and renal function, plasma

levels of (carrier) proteins, e.g. corticosteroid binding globulin and lipid/lipoprotein fractions, parameters of carbohydrate metabolism and parameters of coagulation and fibrinolysis. Changes generally remain within the normal laboratory range.

### **Overdosage**

There have been no reports of serious deleterious effects from overdose. Symptoms that may occur in this case are: nausea, vomiting and, in young girls, slight vaginal bleeding. There are no antidotes and further treatment should be symptomatic.

### **Pharmaceutical Precautions**

#### **Shelf-Life**

3 years.

#### **Special Precautions for Storage**

Store at or below 25°C.

Store in original packaging in order to protect from light and moisture.

#### **Incompatibilities**

Not applicable

### **Medicine Classification**

Prescription Medicine.

### **Package Quantities**

Marvelon 28 tablets are packed in push-through strips made of PVC/aluminium foil blister, which is packed in an aluminium laminated sachet. The sachet is packed in a printed cardboard box together with a package leaflet.

Each strip contains 21 active tablets and 7 inactive/placebo tablets.

Pack sizes: Marvelon 28 is available in packs of 1 and 3 push-through strips.

### **Further Information**

#### **List of Excipients**

##### Active Tablets

- silica colloidal anhydrous
- lactose monohydrate
- potato starch
- povidone
- stearic acid
- all-*rac-alpha*-tocopherol

##### Placebo Tablets

- lactose monohydrate
- magnesium stearate
- potato starch

**Preclinical Safety Data**

Preclinical data reveal no special hazard for humans when COCs are used as recommended. This is based on conventional studies of repeated dose toxicity, genotoxicity, carcinogenic potential and toxicity to reproduction. However, it must be borne in mind that sex steroids can promote the growth of certain hormone-dependent tissues and tumours.

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