For a general discussion of the management of infertility, see p.2080.

1. Armitage M, *et al.* Successful treatment of infertility due to polycystic ovary disease using a combination of luteinising hormone releasing hormone agonist and low dosage menotrophin. *BMJ* 1987; **295:** 96.
2. Owen EJ, *et al.* The use of a short regimen of buserelin, a gonadotrophin-releasing hormone agonist, and human menopausal gonadotrophin in assisted conception cycles. *Hum Reprod* 1989; **4:** 749–53.
3. Rutherford AJ, *et al.* Improvement of in vitro fertilisation after treatment with buserelin, an agonist of luteinising hormone releasing hormone. *BMJ* 1988; **296:** 1765–8.
4. Tan S-L, *et al.* Cumulative conception and live-birth rates after in vitro fertilization with and without the use of long, short, and ultrashort regimens of the gonadotrophin-releasing hormone agonist buserelin. *Am J Obstet Gynecol* 1994; **171:** 513–20.
5. Urbancsek J, Witthaus E. Midluteal buserelin is superior to early follicular phase buserelin in combined gonadotropin-releasing hormone analog and gonadotropin stimulation in in vitro fertilization. *Fertil Steril* 1996; **65:** 966–71.

Malignant neoplasms. The long-term use of buserelin in men decreases the testicular concentration of testosterone. For this reason it is used in the treatment of prostatic cancer (p.671), which is androgen-dependent.[1] Gonadorelin analogues are an effective alternative to orchidectomy, sometimes combined with an anti-androgen for enhanced effect, and play a major role in the management of advanced, incurable disease.

Other reports of malignant neoplasms treated with buserelin include its use in metastatic breast cancer[2,3] (p.661).

1. de Voogt HJ, *et al.* The use of the LHRH-analogue buserelin in the treatment of prostatic cancer: a 10-year review on 1522 patients treated in 119 centers on 4 continents. *Scand J Urol Nephrol Suppl* 1991; **138:** 131–6.
2. Falkson CI, *et al.* Cyclophosphamide, doxorubicin and fluorouracil (CAF) plus depo-buserelin in the treatment of premenopausal women with metastatic breast cancer. *Ann Oncol* 1992; **3:** 849–53.
3. Klijn JG, *et al.* Combined treatment with buserelin and tamoxifen in premenopausal metastatic breast cancer: a randomized study. *J Natl Cancer Inst* 2000; **92:** 903–11.

Porphyria. Buserelin given with medroxyprogesterone acetate suppressed cyclic and premenstrual exacerbations of porphyria (p.1448) in 2 patients. Doses used were 300 micrograms buserelin intranasally in the evenings of days 1 to 21 of the menstrual cycle and 10 mg medroxyprogesterone acetate daily by mouth from day 12 to 21. Both patients were free from porphyric attacks during the reported 11 months of treatment.[1] Intranasal buserelin has also been used in 1 patient to prevent premenstrual exacerbation of coproporphyria.[2] The initial dose of 900 micrograms daily could be tapered to 150 micrograms daily, with only 1 minor attack in 5 years of treatment. The authors of this report also noted a number of case reports of buserelin used in acute intermittent porphyria.

1. Bargetzi MJ, *et al.* Premenstrual exacerbations in hepatic porphyria: prevention by intermittent administration of an LH-RH agonist in combination with a gestagen. *JAMA* 1989; **261:** 864.
2. Yamamori I, *et al.* Prevention of premenstrual exacerbation of hereditary coproporphyria by gonadotropin-releasing hormone analogue. *Intern Med* 1999; **38:** 365–8.

Precocious puberty. The gonadorelin analogues have largely replaced other treatments in the management of central precocious puberty (p.2081). References to the use of buserelin.

1. Drop SLS, *et al.* The effect of treatment with an LH-RH agonist (buserelin) on gonadal activity growth and bone maturation in children with central precocious puberty. *Eur J Pediatr* 1987; **146:** 272–8.
2. Cacciari E, *et al.* Long-term follow-up and final height in girls with central precocious puberty treated with luteinizing hormone-releasing hormone analogue nasal spray. *Arch Pediatr Adolesc Med* 1994; **148:** 1194–9.
3. Juul A, *et al.* Serum insulin-like growth factor I (IGF-I) and IGF-binding protein 3 levels are increased in central precocious puberty: effects of two different treatment regimens with gonadotropin-releasing hormone agonists, without or in combination with an antiandrogen (cyproterone acetate). *J Clin Endocrinol Metab* 1995; **80:** 3059–67.
4. Bertelloni S, *et al.* Effect of central precocious puberty and gonadotropin-releasing hormone analogue treatment on peak bone mass and final height in females. *Eur J Pediatr* 1998; **157:** 363–7.
5. Tuvemo T, *et al.* Suppression of puberty in girls with short-acting intranasal versus subcutaneous depot GnRH agonist. *Horm Res* 2002; **57:** 27–31.

Premenstrual syndrome. For reference to the use of buserelin or other gonadorelin analogues (with HRT to prevent menopausal symptoms) in women unresponsive to other drug treatment, see under Gonadorelin, p.2108.

Preparations

Proprietary Preparations (details are given in Part 3)

Arg.: Suprefact; ***Austria:*** Suprecur; Suprefact; ***Belg.:*** Suprefact; ***Braz.:*** Suprefact; ***Canad.:*** Suprefact; ***Cz.:*** Suprecur†; Suprefact†; ***Denm.:*** Suprecur; Suprefact; ***Fin.:*** Suprecur; Suprefact; ***Fr.:*** Bigonist; Suprefact; ***Ger.:*** Profact; Suprecur; ***Gr.:*** Suprefact; ***Hong Kong:*** Suprecur; ***Hung.:*** Suprefact; ***Irl.:*** Suprecur; Suprefact; ***Israel:*** Suprefact; ***Ital.:*** Suprefact; ***Jpn:*** Suprecur; ***Malaysia:*** Suprefact; ***Mex.:*** Suprefact; ***Neth.:*** Suprecur†; Suprefact; ***Norw.:*** Suprecur; Suprefact; ***NZ:*** Suprefact; ***Port.:*** Suprefact; ***S.Afr.:*** Suprefact; ***Singapore:*** Suprefact; ***Spain:*** Suprefact; ***Swed.:*** Suprecur; Suprefact; ***Switz.:*** Suprefact; ***Thai.:*** Suprefact; ***Turk.:*** Suprecur; Suprefact; ***UK:*** Suprecur; Suprefact.

Cetrorelix Acetate *(BANM, USAN, rINNM)*

Acetato de cetrorelix; Cétrorélix, Acétate de; Cetrorelixi Acetas; D-20761; NS-75A; SB-75 (cetrorelix); SB-075 (cetrorelix). *N*-Acetyl-3-(2-naphthyl)-D-alanyl-*p*-chloro-D-phenylalanyl-3-(3-pyridyl)-D-alanyl-L-seryl-L-tyrosyl-N^5-carbamoyl-D-ornithyl-L-leucyl-L-arginyl-L-prolyl-D-alaninamide acetate.

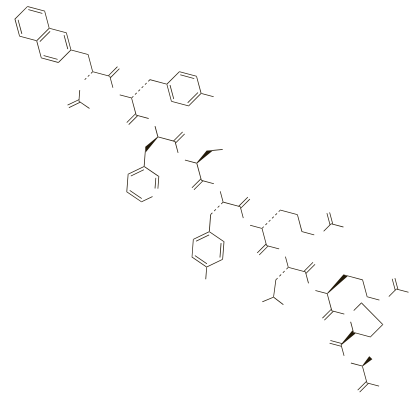
Цетрореликса Ацетат

$C_{70}H_{92}ClN_{17}O_{14}.xC_2H_4O_2$ = 1431.0 (cetrorelix).

CAS — 120287-85-6 (cetrorelix); 145672-81-7 (cetrorelix acetate).

ATC — H01CC02.

ATC Vet — QH01CC02.



(cetrorelix)

Adverse Effects and Precautions

Transient reactions at the injection site, including erythema, pruritus, and swelling, may occur. Nausea and headache have been reported occasionally. Systemic hypersensitivity reactions have been reported rarely.

Cetrorelix should not be used in patients with moderate to severe renal or hepatic impairment.

Pharmacokinetics

The bioavailability of cetrorelix after subcutaneous injection is about 85%. The mean terminal half-life after a subcutaneous injection of 3 mg is about 60 hours; it is less with lower doses (about 5 and 20 hours respectively after single and multiple doses of 250 micrograms).

◊ References.

1. Pechstein B, *et al.* Pharmacokinetic-pharmacodynamic modeling of testosterone and luteinizing hormone suppression by cetrorelix in healthy volunteers. *J Clin Pharmacol* 2000; **40:** 266–74.
2. Nagaraja NV, *et al.* Pharmacokinetic and pharmacodynamic modeling of cetrorelix, an LH-RH antagonist, after subcutaneous administration in healthy premenopausal women. *Clin Pharmacol Ther* 2000; **68:** 617–25.

Uses and Administration

Cetrorelix is a gonadorelin (gonadotrophin-releasing hormone) antagonist used as a component of ovarian stimulation regimens for assisted reproduction in infertility (p.2080); it is used to prevent luteinising hormone surges and premature ovulation. It has also been tried in benign prostatic hyperplasia, malignant neoplasms of the prostate, endometriosis, and for uterine fibroids. Cetrorelix is given by subcutaneous injection as the acetate; an intramuscular depot formulation containing cetrorelix embonate is reported to be under development. For assisted reproduction, doses of cetrorelix acetate equivalent to cetrorelix 250 micrograms daily may be given either in the morning beginning on day 5 or 6 of ovarian stimulation or in the evening beginning on day 5, and continued until ovulation induction. Alternatively a single dose equivalent to 3 mg of cetrorelix may be given on day 7; if follicle growth does not allow ovulation induction within 4 days, additional doses of cetrorelix 250 micrograms once daily may be given until the day of ovulation induction.

◊ References.

1. Gonzalez-Barcena D, *et al.* Treatment of uterine leiomyomas with luteinizing hormone-releasing hormone antagonist cetrorelix. *Hum Reprod* 1997; **12:** 2028–35.
2. Comaru-Schally AM, *et al.* Efficacy and safety of luteinizing hormone-releasing hormone antagonist cetrorelix in the treatment of symptomatic benign prostatic hyperplasia. *J Clin Endocrinol Metab* 1998; **83:** 3826–31.
3. Felberbaum RE, *et al.* Treatment of uterine fibroids with a slow-release formulation of the gonadotrophin releasing hormone antagonist cetrorelix. *Hum Reprod* 1998; **13:** 1660–8.
4. Huirne JAF, Lambalk CB. Gonadotropin-releasing-hormone-receptor antagonists. *Lancet* 2001; **358:** 1793–1803.
5. Ludwig M, *et al.* Use of GnRH antagonists in ovarian stimulation for assisted reproductive technologies compared to the long protocol: meta-analysis. *Arch Gynecol Obstet* 2001; **265:** 175–82.
6. Roulier R, *et al.* Depot GnRH agonist versus the single dose GnRH antagonist regimen (cetrorelix, 3 mg) in patients undergoing assisted reproduction treatment. *Reprod Biomed Online* 2003; **7:** 185–9.
7. Griesinger G, *et al.* Gonadotropin-releasing hormone antagonists for assisted reproductive techniques: are there clinical differences between agents? *Drugs* 2004; **64:** 563–75.
8. Al-Inany HG, *et al.* Gonadotrophin-releasing hormone antagonists for assisted conception. Available in The Cochrane Database of Systematic Reviews; Issue 3. Chichester: John Wiley; 2006 (accessed 28/07/08).

Preparations

Proprietary Preparations (details are given in Part 3)

Arg.: Cetrotide; ***Austral.:*** Cetrotide; ***Austria:*** Cetrotide; ***Belg.:*** Cetrotide; ***Braz.:*** Cetrotide; ***Canad.:*** Cetrotide; ***Chile:*** Cetrotide; ***Cz.:*** Cetrotide; ***Denm.:*** Cetrotide; ***Fin.:*** Cetrotide; ***Fr.:*** Cetrotide; ***Ger.:*** Cetrotide; ***Gr.:*** Cetrotide; ***Hong Kong:*** Cetrotide; ***Hung.:*** Cetrotide; ***India:*** Cetrotide; ***Indon.:*** Cetrotide; ***Irl.:*** Cetrotide; ***Israel:*** Cetrotide; ***Ital.:*** Cetrotide; ***Malaysia:*** Cetrotide; ***Mex.:*** Cetrotide; ***Neth.:*** Cetrotide; ***Norw.:*** Cetrotide; ***NZ:*** Cetrotide; ***Philipp.:*** Cetrotide; ***Pol.:*** Cetrotide; ***Port.:*** Cetrotide; ***Rus.:*** Cetrotide (Цетротид); ***Singapore:*** Cetrotide; ***Spain:*** Cetrotide; ***Swed.:*** Cetrotide; ***Switz.:*** Cetrotide; ***Thai.:*** Cetrotide; ***Turk.:*** Cetrotide; ***UK:*** Cetrotide; ***USA:*** Cetrotide; ***Venez.:*** Cetrotide.

Chlormadinone Acetate *(BANM, USAN, rINNM)*

Acetato de clormadinona; Chlormadinone, Acétate de; Chlormadinoni Acetas; NSC-92338. 6-Chloro-17-hydroxypregna-4,6-diene-3,20-dione acetate.

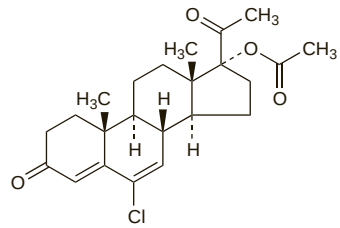
Хлормадинона Ацетат

$C_{23}H_{29}ClO_4$ = 404.9.

CAS — 1961-77-9 (chlormadinone); 302-22-7 (chlormadinone acetate).

ATC — G03DB06.

ATC Vet — QG03DB06.



Pharmacopoeias. In *Chin.*, *Fr.*, and *Jpn.*

Adverse Effects and Precautions

As for progestogens in general (see Progesterone, p.2125). See also under Hormonal Contraceptives, p.2059.

Effects on the skin. A report of auto-immune dermatitis in a patient associated with chlormadinone acetate.[1]

1. Katayama I, Nishioka K. Autoimmune progesterone dermatitis with persistent amenorrhoea. *Br J Dermatol* 1985; **112:** 487–91.

Interactions

As for progestogens in general (see Progesterone, p.2126). See also under Hormonal Contraceptives, p.2067.

Uses and Administration

Chlormadinone acetate is a progestogen structurally related to progesterone (p.2126) that has anti-androgenic activity. It is given either alone or with an oestrogen in the treatment of menstrual disorders such as menorrhagia (p.2126) and endometriosis (p.2091) in oral doses of 2 to 10 mg daily either cyclically or continuously. It may also be used as the progestogen component of combined oral contraceptives (see p.2069) at a dose of 1 to 2 mg daily, particularly in women with androgen-dependent conditions such as acne and hirsutism. Chlormadinone acetate has been used in some countries in the management of prostatic hyperplasia and prostate cancer; oral doses of 25 or 50 mg, respectively have been given twice daily.

◊ Reviews.

1. Curran MP, Wagstaff AJ. Ethinylestradiol/chlormadinone acetate. *Drugs* 2004; **64:** 751–60.
2. Bouchard P. Chlormadinone acetate (CMA) in oral contraception—a new opportunity. *Eur J Contracept Reprod Health Care* 2005; **10** (suppl 1): 7–11.

Preparations

Proprietary Preparations (details are given in Part 3)

Fr.: Luteran; ***Ger.:*** Gestafortin†; ***Jpn:*** Prostal; ***Mex.:*** Lutoral.

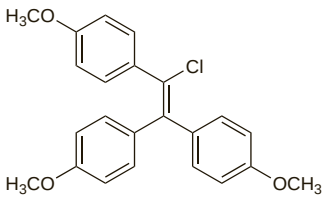
Multi-ingredient: ***Chile:*** Belara; Lovinda; ***Cz.:*** Belara; ***Fr.:*** Belara; ***Ger.:*** Balanca; Belara; Esticia; Gestamestrol N†; Neo-Eunomin; Ovosiston†; ***Hung.:*** Belara; ***Israel:*** Belara; ***Ital.:*** Belara; ***Mex.:*** Belara; Lutoral-E; Secuentex-21; ***Port.:*** Belara; Libeli; ***Rus.:*** Belara (Белара); ***Spain:*** Belara; ***Switz.:*** Belara; ***Venez.:*** Belara.

Chlorotrianisene *(BAN, rINN)*

Chlorotrianisène; Chlorotrianisenum; Clorotrianiseno; Klooritrianiseeni; Klortrianisen; NSC-10108; Tri-*p*-anisylchloroethylene. Chlorotris(4-methoxyphenyl)ethylene.

Хлоротрианизен

$C_{23}H_{21}ClO_3$ = 380.9.
CAS — 569-57-3.
ATC — G03CA06.
ATC Vet — QG03CA06.



Pharmacopoeias. In *Chin.*

Profile

Chlorotrianisene is a synthetic nonsteroidal oestrogen structurally related to diethylstilbestrol (p.2094). It has a prolonged action, and has been given orally for the treatment of menopausal symptoms, female hypogonadism, and prostatic carcinoma.

Chorionic Gonadotrophin *(BAN, rINN)* ⊗

CG; Choriogonadotrophin; Chorionic Gonadotropin; Chorioninis gonadotropinas; Gonadotrofina coriónica; Gonadotrophine Chorionique; Gonadotrophinum Chorionicum; Gonadotropin choriový; Gonadotropine chorionique; Gonadotropinum chorionicum; hCG; Human Chorionic Gonadotrophin; Koriongonadotropiini; Koriongonadotropin; Korion-gonadotropin; Koriyonik Gonadotrofin; Pregnancy-urine Hormone; PU.

Гонадотропин Хорионический
CAS — 9002-61-3.
ATC — G03GA01.
ATC Vet — QG03GA01.

Pharmacopoeias. In *Chin.*, *Eur.* (see p.vii), *Jpn*, and *US*.

Ph. Eur. 6.2 (Gonadotrophin, Chorionic). A dry preparation of placental glycoproteins extracted from the urine of pregnant women. The potency is not less than 2500 units/mg. A white to yellowish-white, amorphous powder. Soluble in water. Store at 2° to 8° in airtight containers. Protect from light.

USP 31 (Chorionic Gonadotropin). A gonad-stimulating polypeptide hormone obtained from the urine of pregnant women. It has a potency of not less than 1500 USP units/mg. A white or practically white, amorphous powder. Freely soluble in water. Store in airtight containers at 2° to 8°.

Choriogonadotropin Alfa *(BAN, USAN, rINN)* ⊗

Choriogonadotropine Alfa; Choriogonadotropinum Alfa; Coriogonadotropina alfa.

Хориогонадотропин Альфа
CAS — 177073-44-8 (choriogonadotropin alfa); 56832-30-5 (α subunit); 56832-34-9 (β subunit).
ATC — G03GA08.
ATC Vet — QG03GA08.

Adverse Effects and Precautions

Adverse effects that have been reported with chorionic gonadotrophin include headache, tiredness, changes in mood, depression, restlessness, oedema (especially in males), and pain on injection. Treatment for cryptorchidism may produce premature epiphyseal closure or precocious puberty. Gynaecomastia has been reported. Ovarian hyperstimulation may occur, with marked ovarian enlargement or cyst formation, acute abdominal pain, ascites, pleural effusion, hypovolaemia, shock, and thromboembolic disorders in severe cases.

Chorionic gonadotrophin should be given with care to patients in whom androgen-induced fluid retention might be a hazard as in asthma, epilepsy, migraine, or cardiovascular disorders, including hypertension, or renal disorders. Hypersensitivity reactions may occur and it is recommended that patients suspected to be susceptible should be given skin tests before treatment. It should not be given to patients with disorders that might be exacerbated by androgen release such as carcinoma of the prostate or precocious puberty. Use should also be avoided in the presence of breast, uterine, ovarian, and testicular tumours, as well as tumours of the hypothalamus, pituitary, thyroid, and adrenal glands.

Pharmacokinetics

Peak concentrations of chorionic gonadotrophin occur about 6 hours after an intramuscular dose and 16 to 20 hours after a subcutaneous injection. It is distributed primarily to the gonads. Blood concentrations decline in a biphasic manner, with half-lives of about 6 to 11 hours and 23 to 38 hours, respectively. Chorionic gonadotrophin is metabolised mainly in the kidneys. About 10 to 12% of an intramuscular dose is excreted in urine within 24 hours.

After subcutaneous doses, choriogonadotropin alfa has a bioavailability of about 40%. It is metabolised and excreted similarly to chorionic gonadotrophin.

Uses and Administration

Chorionic gonadotrophin is a hormone produced by the placenta and obtained from the urine of pregnant women. Its effects are mainly those of the gonadotrophin, luteinising hormone (p.2112), which is responsible for triggering ovulation and formation of the corpus luteum in women, and stimulates the production of testosterone by the testes in men. It is usually given by intramuscular injection although the subcutaneous route has also been used. Choriogonadotropin alfa is a recombinant form of chorionic gonadotrophin.

In *women* with **anovulatory infertility** due to absent or low concentrations of gonadotrophins, chorionic gonadotrophin is given to induce ovulation after follicular development has been stimulated with follicle-stimulating hormone or human menopausal gonadotrophins. A single dose of 5000 to 10 000 units of chorionic gonadotrophin is given by intramuscular injection to mimic the midcycle peak of luteinising hormone which normally stimulates ovulation. Up to 3 repeat injections of up to 5000 units each may be given within the next 9 days to prevent insufficiency of the corpus luteum. Chorionic gonadotrophin is also given with menotrophin as an adjunct to IVF procedures and other assisted conception techniques involving superovulation and oocyte collection.

Choriogonadotropin alfa is used similarly to induce ovulation in the treatment of anovulatory infertility, or as an adjunct to IVF procedures and other assisted conception techniques. A single dose of 250 micrograms is given, by subcutaneous injection, when optimal stimulation of follicular growth is achieved.

In *males*, chorionic gonadotrophin has been used in the treatment of prepubertal **cryptorchidism**. Regimens vary widely, but doses usually range from 500 to 4000 units three times weekly by intramuscular injection. Treatment should continue for 1 to 2 months after testicular descent.

Chorionic gonadotrophin is also given for male infertility associated with hypogonadotrophic **hypogonadism**. Again, there is considerable variation in the dosage regimen, and doses have varied from 500 to 4000 units two or three times weekly by intramuscular injection. A drug with follicle-stimulating activity such as menotrophin is often added to enable normal spermatogenesis.

In the treatment of **delayed puberty** associated with hypogonadism in males, an initial dose of chorionic gonadotrophin 500 to 1500 units is given twice weekly by intramuscular injection; the dose should be titrated against plasma-testosterone concentration.

Cryptorchidism. Although surgery remains the treatment with the best success rate, primary hormonal therapy with chorionic gonadotrophin is widely used for cryptorchidism (p.2079). Systematic reviews[1,2] suggest a success rate of about 20% overall, although this may be reduced when care is taken to exclude retractile testes. There is some suggestion that medical treatment given either before or after surgery can improve the patient's fertility index, a predictor of future fertility.[3] Chorionic gonadotrophin may also be used as an adjuvant before surgery, to render the testes palpable,[4] but changes suggestive of inflammation in the testis have been reported following such treatment.[5]

1. Pyöräläinen S, *et al.* A review and meta-analysis of hormonal treatment of cryptorchidism. *J Clin Endocrinol Metab* 1995; **80:** 2795–9.
2. Henna MR, *et al.* Hormonal cryptorchidism therapy: systematic review with metanalysis of randomized clinical trials. *Pediatr Surg Int* 2004; **20:** 357–9.
3. Tekgül S, *et al.* European Society for Paediatric Urology, European Association of Urology. Guidelines on paediatric urology (issued March 2008). Available at: http://www.uroweb.org/fileadmin/user_upload/Guidelines/Paediatric%20Urology.pdf (accessed 31/03/08)
4. Polascik TJ, *et al.* Reappraisal of the role of human chorionic gonadotropin in the diagnosis and treatment of the nonpalpable testis: a 10-year experience. *J Urol (Baltimore)* 1996; **156:** 804–6.
5. Kaleva M, *et al.* Treatment with human chorionic gonadotrophin for cryptorchidism: clinical and histological effects. *Int J Androl* 1996; **19:** 293–8.

Delayed puberty. Use of chorionic gonadotrophin may be appropriate in boys with delayed puberty due to hypogonadotrophic hypogonadism (p.2079).

Infertility. In women with anovulatory infertility chorionic gonadotrophin and choriogonadotropin alfa can be used to provoke ovulation and provide luteal support once maturation of a suitable number of follicles has been stimulated by other means. They are used similarly in the various protocols for assisted reproduction. However, use is not recommended for assisted reproduction in patients at risk of ovarian hyperstimulation, such as those with polycystic ovary syndrome. In men with hypogonadotrophic hypogonadism chorionic gonadotrophin is used to stimulate and maintain spermatogenesis. The management of male and female infertility, including the role of chorionic gonadotrophin, is discussed on p.2080.

Malignant neoplasms. Control of Kaposi's sarcoma (p.675) has been reported in a few patients given high-dose intramuscular chorionic gonadotrophin, but regrowth occurred when dosage was reduced or withdrawn.[1] Another study, using lower doses, was stopped due to toxicity and lack of benefit,[2] but others have confirmed benefit after intralesional injection.[3] There is some suggestion that preparations vary in their activity against the tumour and that it is not chorionic gonadotrophin itself, but some impurity (perhaps a ribonuclease[4] or the degradation product of the β-subunit[5]), that is the active principle.[3,6,7] Some contaminants may have a stimulant effect on the neoplasm, which might also contribute to the variable results.[5]

1. Harris PJ. Treatment of Kaposi's sarcoma and other manifestations of AIDS with human chorionic gonadotropin. *Lancet* 1995; **346:** 118–19.
2. Bower M, *et al.* Human chorionic gonadotropin for AIDS-related Kaposi's sarcoma. *Lancet* 1995; **346:** 642.
3. Gill PS, *et al.* The effects of preparations of human chorionic gonadotropin on AIDS-related Kaposi's sarcoma. *N Engl J Med* 1996; **335:** 1261–9. Correction. *ibid.* 1997; **336:** 1115.
4. Griffiths SJ, *et al.* Ribonuclease inhibits Kaposi's sarcoma. *Nature* 1997; **390:** 568.
5. Simonart T, *et al.* Treatment of Kaposi's sarcoma with human chorionic gonadotropin. *Dermatology* 2002; **204:** 330–3.
6. Gill PS, *et al.* Intralesional human chorionic gonadotropin for Kaposi's sarcoma. *N Engl J Med* 1997; **336:** 1188.
7. von Overbeck J, *et al.* Human chorionic gonadotropin for AIDS-related Kaposi's sarcoma. *Lancet* 1995; **346:** 642–3.

Obesity. A meta-analysis[1] involving 24 studies concluded that there was no evidence that chorionic gonadotrophin was effective in the treatment of obesity (p.2149).

1. Lijesen GKS, *et al.* The effect of human chorionic gonadotropin (HCG) in the treatment of obesity by means of the Simeons therapy: a criteria-based meta-analysis. *Br J Clin Pharmacol* 1995; **40:** 237–43.

Testicular function. Chorionic gonadotrophin is used in the assessment of testicular function in suspected primary hypogonadism and incomplete masculinisation. The *BNFC* states that for children 1 month to 18 years of age a dose of 1500 to 2000 units may be given once daily for 3 days (short stimulation test) or twice weekly for 3 weeks (prolonged test).

Preparations

BP 2008: Chorionic Gonadotrophin Injection;
USP 31: Chorionic Gonadotropin for Injection.

Proprietary Preparations (details are given in Part 3)
Arg.: Dinaron; Endocorion; Gonacor; Ovidrel; Pregnyl; Profasi†; ***Austral.:*** Ovidrel; Pregnyl; Profasi; ***Austria:*** Pregnyl; Profasi; ***Belg.:*** Choragon; Ovitrelle; Pregnyl; ***Braz.:*** Choragon†; Ovidrel; Pregnyl; Profasi HP; ***Canad.:*** Pregnyl†; Profasi HP; ***Chile:*** APL†; Gonacor; Ovidrel†; Pregnyl; Profasi†; ***Cz.:*** Ovitrelle; Praedyn†; Pregnyl; Profasi†; ***Denm.:*** Ovitrelle; Pregnyl; Profasi†; ***Fin.:*** Ovitrelle; Pregnyl; Profasi†; ***Fr.:*** Ovitrelle; ***Ger.:*** Choragon; Ovitrelle; Predalon; Pregnesin†; Primogonyl†; ***Gr.:*** Ovitrelle; Pregnyl; Profasi†; ***Hong Kong:*** Choragon; Choriomon; Ovidrel; Pregnyl; Profasi; ***Hung.:*** Choragon; Ovitrelle; Pregnyl; Profasi†; ***India:*** Corion; Profasi; Proligon†; Provigil; Pubergen; ***Indon.:*** Ovidrel; Pregnyl; ***Irl.:*** Ovitrelle; Pregnyl; Profasi; ***Israel:*** Chorigon†; Ovitrelle; Pregnyl; ***Ital.:*** Gonasi HP; Ovitrelle; Pregnyl; Profasi HP†; ***Malaysia:*** Choragon; Ovidrel; Pregnyl; Profasi†; ***Mex.:*** Choragon; Choriomon; Gonadotropyl C†; Ovidrel; Pregnyl; Profasi†; ***Neth.:*** Choragon; Ovitrelle; Pregnyl; Profasi†; ***Norw.:*** Ovitrelle; Pregnyl; Profasi†; ***NZ:*** Ovidrel; Profasi; ***Philipp.:*** Ovidrel; Pregnyl; ***Pol.:*** Choragon; Ovitrelle; Pregnyl; ***Port.:*** Ovitrelle; Pregnyl; Profasi HP†; ***Rus.:*** Choragon (Хорагон); Ovitrelle (Овитрель); Pregnyl (Прегнил); ***S.Afr.:*** APL; Pregnyl; Profasi; ***Singapore:*** Ovidrel; Pregnyl; Profasi†; ***Spain:*** Ovitrelle; Profasi HP†; ***Swed.:*** Ovitrelle; Pregnyl; Profasi†; ***Switz.:*** Choriomon; Ovitrelle; Pregnyl; Profasi†; ***Thai.:*** IVF-C; Ovidrel; Pregnyl; Profasi†; ***Turk.:*** Choragon; Ovitrelle; Pregnyl;