The Use and Abuse of Hormone Therapy in Gynaecological Disorders

BY

A. N. HORWITZ, M.B., CH.B., M.R.C.O.G.
Gynaecologist, Salisbury.

The study of endocrinology has done much to further our knowledge of sexual function. As the various sex hormones were isolated, it was hoped that many gynaecological problems would respond to replacement therapy, but the results have been disappointing. It is true that hormone therapy has been misused in the past and has often been recommended for conditions in which there was no justification for its use. It is equally true though, that when used in conditions which are known to be due to hormonal imbalance, hormone therapy has failed to produce the desired results. Nevertheless, future research may lead to the discovery of new and potent hormone preparations, which will enable us to control and treat menstrual abnormalities. It is imperative that an accurate diagnosis should be made by means of clinical, gynaecological and pathological examination prior to instituting hormone therapy. A "Let's try hormone therapy in the hope that it will do some good" attitude must be deprecated, as hormones will not cure bleeding due to fibroids, polypi, carcinoma, etc. Even in functional uterine haemorrhage, with normal findings on clinical examination, it is essential not to administer hormones before studying the endometrial patterns, as good results can only be obtained if the diagnosis is accurate and the correct treatment is instituted.

It may not be amiss at this point to give a short resume of the hormone control of the normal menstrual cycle:—

Each month, during the period of reproductive life, several primordial follicles in the ovaries commence developing under the stimulus of the follicle-stimulating hormone (F.S.H.) of the anterior pituitary gland. During their development the follicles secrete oestrogen. Usually only one follicle reaches full maturity and ruptures on the surface of the ovary—ovulation. The remaining follicles undergo atretic changes and are known as corpora atretica. Ovulation usually occurs fourteen days before the onset of menstruation, i.e., midcycle. After ovulation the follicle is converted into a corpus luteum and, under the influence of the pituitary luteinising hormone (L.H.), the corpus luteum secretes a hormone known as progesterone.

The follicle stimulating hormone (F.S.H.) and the luteinising hormone (L.H.) are known as the pituitary gonadotrophins, whilst oestrogen and progesterone are known as the female sex hormones.

The Oestrogens

Physiological Actions.

A. The oestrogens are responsible for the development of the secondary sex characters. They are partially responsible for the growth of axillary and pubic hair, commencing at puberty. Under their influence the breasts develop their ductal and connective tissue systems and the body develops its typical female configuration.

B. They are responsible for the cyclical proliferation of the endometrium and for the tone and growth of uterine muscle.

C. They bring about the growth of both the internal and external sex organs to their adult dimensions.

D. They cause the tubal fimbriae to embrace the ovary at ovulation and stimulate the rhythmical peristaltic waves in the Fallopian tubes.

E. Oestrogens produce cornification of the vaginal mucosa and are responsible for the clear secretion of the cervical glands.

F. As the titre of oestrogens in the blood rises, pituitary activity is suppressed and the release of the gonadotrophic hormones is prevented.

G. Oestrogens stimulate osteoblastic activity and encourage the deposition of calcium and phosphorus in the bones.

H. Like all the other steroid hormones, oestrogens induce sodium and fluid retention.

Oestrogens available for clinical use are either natural or synthetic hormones. The natural oestrogens are extracted from human sources or from the urine of pregnant mares and tend to be expensive. These are Oestrone, Oestradiol and Oestriol, which are taken orally, and the various esters of Oestradiol, which are given by intramuscular injection. A preparation of conjugated equine oestrogens called "Premarin" is made in both oral and parenteral forms. Pellets containing Oestradiol in doses of 10 mg. and 25 mg. for deep intramuscular implantation are also made, and these implants are effective for approximately nine months.

The synthetic oestrogens in common use include the following: Stilboestrol, Dienoestrol, Ethinyloestradiol, T.A.C.E. (Chlorotrianisene) and Vallestril (Methallenoestril). The potency of the various oral oestrogens varies, and Bishop (1958) has given the following comparative dosage figures:—

Stilboestrol	1 mg.
Dienoestrol	5 mg.
Ethinyloestradiol	0.05 mg.
Conjugated equine oestrogens (Premarin)	2.5 mg.

The relative potencies of T.A.C.E. and "Vallestril" have not yet been established. It seems probable that an injection of Oestradiol Monobenzoate 5 mg. twice a week has the same potency as 1 to 2 mg. of Stilboestrol daily. It is hardly ever necessary to give oestrogens by injection, as the synthetic oestrogens given orally are effective in most cases.

Stilboestrol and to a lesser extent Ethinyloestradiol frequently cause nausea and vomiting. The natural oestrogens and Dienoestrol, T.A.C.E. and "Vallestril" very seldom give rise to toxic effect.

Therapeutic Indications.

Oestrogens have been used in a wide variety of gynaecological disorders, but are only really effective in relatively few conditions. Taylor (1953) has carefully analysed the indications for oestrogen therapy, and states that in only three conditions is oestrogen therapy of proven value, viz., menopausal symptoms, atrophic vaginitis and inhibition of lactation. He also states that probable occasional indications for oestrogen therapy are functional menorrhagia, amenorrhoea, oligomenorrhoea, infertility due to anovular cycles and postpartum breast engorgement.

Menopausal Symptoms.

As is well known, many women suffer from vasomotor phenomena at the time of the menopause. In some the symptoms are mild and respond to re-assurance and a small dose of phenobarbitone. In others the hot flushes may be frequent and severe, and these can be controlled with oestrogen therapy. Bishop (1958) recommends that the lowest dose which will just control the flushes should be determined by trial and error, and then maintained. Stilboestrol 0.25 mg. daily or Ethinyloestradiol 0.01 mg. daily is usually sufficient. Treatment should be discontinued for a week every six weeks. As the number of flushes per day decreases the patient should be advised to take the tablets on alternate days, and then at gradually increasing intervals, until treatment is stopped.

Combinations of oestrogen and testosterone are on the market to-day. Most of these preparations contain Ethinyloestradiol 0.01 mg. and Methyltestosterone 3 mg. per tablet. These preparations must be used with care, as the patient may develop hirsuites. Ethinyloestradiol or Stilboestrol alone must also be used with care. Dosages must be kept as low as possible, as large or prolonged dosage may lead to postmenopausal bleeding. This, in fact, is one of the most common causes of postmenopausal bleeding to-day.

Atrophic Vaginitis and Kraurosis.

In these senile atrophic conditions oestrogen therapy rapidly transforms the atrophic mucosa into normal, healthy, well-cornified thick epithelia. Stilboestrol 5 mg. daily or Ethinyloestradiol 0.25 mg. daily for three weeks is usually sufficient. As an alternative, oestrogen vaginal pessaries can be used in a dosage of one pessary every night for two weeks, followed by one pessary every week for a month (Taylor, 1953).

In vulvovaginitis of children, Ethinyloestradiol 0.01 mg. daily for a few days is used to alter the mucosa to the adult type, which is resistant to pyogenic organisms, and in addition specific treatment is given to annihilate the causal organism (gonococcus).

Suppression of Lactation.

Stilboestrol 15 mg. or its equivalent is given on the day of parturition and the following day, then the dose is reduced to 10 mg. a day for two days, and then 5 mg. a day is given for three further days.

Once lactation is established it is much more difficult to suppress lactation with oestrogen. If suckling is suddenly discontinued, breast-engorgement may result and this does not always respond to oestrogens, but may respond to androgen therapy.

Functional Uterine Haemorrhage.

Irregular or regular excessive uterine bleeding may be caused by various pathological conditions such as pelvic infection, fibroids, polypi, neoplasms, etc., or it may be due to what is known as functional uterine haemorrhage, which is bleeding occurring during the child-bearing period, in the absence of detectable pelvic pathology. The diagnosis is thus made on clinical examination followed by uterine curettage.

Summary of Therapeutic Indications and Dosages, Using Sex Hormones

Oestrogens Alone

Indications	Hormones and Dosages	Remarks
1. Menopausal symptoms.	Stilb. 0.25 mg. daily or E.O. 0.01 mg. daily.	Discontinue treatment for a week every six weeks. Reduce dosage as symptoms improve.
2. Atrophic vaginitis. Kraurosis vulvae.	Stilb. 5 mg. daily or E.O. 0.25 mg. daily for three weeks; or Oestrogen vaginal pessary i nocte for two weeks, then i weekly for one month.	
3. Vulvovaginitis of children.	E.O. 0.01 mg. daily for 3-4 days.	+ Specific treatment for causal organism.
4. Suppression of lactation.	Stilb. 15 mg. day of delivery, 15 mg. next day, 10 mg. for two days, 5 mg. for three further days.	Less effective once lactation established.

Oestrogens + Progestogens

1. Functional uterine haemorrage.	D & C to be done first in all cases.	D & C may have to be repeated. In recurrent cases, may need hysterectomy.
(a) Metropathia haemorrhagica.	E.O. 0.01 mg. or Stilb. 2 mg. daily for three weeks + Ethis. 15 mg. t.d.s. for last week. *Severe Haemorrhage*: E.O. 0.2 mg. or Stilb. 5 mg. two-hourly or Premarin 20 mg. I.V. 4-12 hourly till bleeding ceases; then E.O. 0.2 mg. or Stilb. 5 mg. or Premarin 2.5 mg. orally daily for one week; then half these doses for one week, with addition of Ethis. 15 mg. t.d.s.	D & C first. Repeat for several cycles. To prevent withdrawal bleeding.
(b) Irregular shedding and irregular ripening of endometrium.	D & C—repeated if necessary.	Hormone therapy of little use.
(c) Regular ovulatory bleeding.	Methyltest. 25 mg. + Ethis. 60 mg. t.d.s. for four days, starting on first day of period.	"Medical curettage." Repeat for three cycles.
(d) Regular anovulatory bleeding.	Ethis. 15 mg. t.d.s. for one week before period, then "medical curettage" as above.	
2. Amenorrhoea and oligomenorrhoea.	Stilb. 1 mg. daily for 21 days + Progest. 25 mg. I.M. daily for last week of course. Repeat.	Results poor.
3. Infertility due to anovular cycles.	Stilb. 1 mg. or E.O. 0.05 mg. daily for three weeks + Ethis. 25 mg. daily for last week of course. Repeat.	Results equivocal.
4. Dysmenorrhoea.	Stilb. 2-3 mg. or E.O. 0.1 mg. daily for 14 days. Repeat for several cycles.	Produces anovulatory bleeding, which is painless.
5. Disorders of pregnancy.		No longer used.

Indications	Hormones and Dosages	Remarks
PROGESTOGENS		
1. Threatened abortion.		Rest and sedation alone produce equivalent results to hormone therapy.
2. Habitual abortion.	Implants of six 25 mg. pellets of Progest. Repeat two-monthly till delivery.	Results probably due to psychotherapeutic effect. Shirodkar operation in cases of cervical incompetence.
3. Premenstrual tension.	Progest. 25 mg. I.M. on alternate days in second half cycle. Repeat.	+ Ammon. chlor. 7½-15 gr. daily, or "Diamox" i tab. t.d.s. In cases with severe psychological symptoms, "Myanesin" tabs. ii t.d.s. from fifteenth to twenty-fifth day.
ANDROGENS		
1. Menopausal syndrome.	E.O. 0.01 mg.+methyltest, 3 m.g. daily.	Virilisation produced with dosages over 150 mg. Testosterone proprionate or 450 mg. Methyltestosterone per month. In severe cases not more than three tabs. per day. Beware prolonged dosage.
2. Functional uterine haemorrhage.	"Medical curettage" described above.	
3. Frigidity.	Methyltest. 10 mg. per day for three weeks; interval of two weeks. Repeat? x. 2.	Beware signs of virilisation.
GONADOTROPHIC HORMONES		
		Results equivocal. Can produce intraperitoneal bleeding from multiple haemorrhagic cysts of ovaries. Should only be used on consultant's advice.

Abbreviations.—E.O.: Ethinyloestradiol. Stilb.: Stilboestrol. Ethis.: Ethisterone. Progest.: Progesterone. Methyltest.: Methyltestosterone. I.M.: Intramuscularly. I.V.: Intravenously.

In functional uterine haemorrhage four main groups can be defined:—

A.—Functional Irregular Bleeding

(1) *Metropathia Haemorrhagica.*—This condition usually occurs soon after puberty or in the years preceding the menopause. The endometrium displays the typical picture of cystic glandular hyperplasia (Swiss cheese endometrium).

(2) *Irregular Shedding or Irregular Ripening of the Endometrium.*—The endometrium here shows a mixed picture.

B.—Functional Regular Bleeding

(1) *Anovulatory Bleeding.*—In which the endometrium is of the non-secretory type in the second half of the cycle.

(2) *Ovulatory Bleeding.*—In which the endometrium is of the secretory type.

Metropathia Haemorrhagica.

In cases of metropathia haemorrhagica, 50 per cent. will respond to curettage alone, therefore in this event the curettage may be both diagnostic and curative. In a classical case there is a history of amenorrhoea, followed by irregular episodes of menorrhagia. In the pubertal cases, if the patient is below 18 years of age, it is not necessary to do a curettage and these are best treated with oestrogen and progesterone. It is difficult to assess results, as the condition is notorious for showing spontaneous remissions followed occasionally by relapses. In all cases over the age of 18 it is imperative to do a *curettage* first *before* embarking on medical treatment.

In those cases in which meno-metrorrhagia returns following the initial curettage, hormone therapy is instituted. Ethinyloestradiol 0.1 mg. daily (or equivalent) is given for three weeks, together with Ethisterone 15 mg. b.d. for the last week. This treatment is repeated for three

or four successive cycles. If this fails to control the condition, the curettage may have to be repeated.

In the "pre-menopausal" patient, say, a woman aged 40, the initial curettage may cure the condition for a while; if menorrhagia recurs a second curettage is performed, and if this fails a hysterectomy should be advised.

Oestrogens are extremely useful to *stop an attack of severe haemorrhage*, and Bishop (1958) claims that oestrogens will arrest bleeding in 70 per cent. cases. Large doses of oestrogens are given, e.g., 0.2 mg. Ethinyloestradiol or 5 mg. Stilboestrol every two waking hours until bleeding ceases, normally 36-48 hours. However, large doses of oestrogens may cause marked nausea and vomiting, and Bishop now recommends as an alternative 20 mg. of "Premarin" intravenously. This can be repeated at intervals of four to twelve hours until a satisfactory haemostatic response is obtained. In order to prevent "withdrawal bleeding" on the cessation of oestrogen therapy, the intensive course of treatment is tapered off by giving 0.2 mg. of Ethinyloestradiol or 5 mg. Stilboestrol or 2.5 mg. of "Premarin" daily for a week, and then half these doses daily for a second week. Progesterone, in the form of Ethisterone 15 mg. t.d.s., may be given with the oestrogens during the last week in the hope of producing ovulatory (secretory) bleeding.

Ethinyloestradiol 0.1 mg. daily for three weeks, together with Ethisterone 15 mg. b.d. for the last week, may be given for three or four successive cycles.

Irregular Ripening and Irregular Shedding of the Endometrium.

Hormone therapy is unfortunately of little avail in cases of irregular ripening and irregular shedding of the endometrium. Curettage may cure these conditions, but in a patient around the age of 40 a hysterectomy may be necessary.

In cases of functional regular bleeding, if curettage alone is ineffective, hormone therapy can be used. Ovulatory bleeding is treated with small doses of androgens, e.g., Methyltestosterone 25 mg. with Ethisterone 60 mg. t.d.s. for four days, commencing on the first day of the period. It is claimed that this treatment produces a "medical curettage." The treatment may have to be repeated on two or three occasions. The above combination of Methyltestosterone and Ethisterone can also be used in the treatment of metropathia haemorrhagica and in cases of anovulatory bleeding. In the latter case it may be advisable to start progesterone therapy one week before the onset of the next period.

Amenorrhoea and Oligomenorrhoea.

Although oestrogens alone or combinations of oestrogens and progestogens will induce withdrawal bleeding in cases of amenorrhoea, this seldom leads to the establishment of regular ovulatory cycles, and treatment is therefore disappointing. Some authorities recommend repeated courses of 5 mg. Stilboestrol daily for two weeks, followed by an interval of a week; others recommend Stilboestrol 0.5 mg. daily for 21 days, together with Progesterone 25 mg. daily for the last week of the course.

Schwartz (1950) states that the production of withdrawal bleeding may be used to distinguish between amenorrhoea due to pregnancy and that due to hormonal failure. Oestradiol benzoate 2.5 mg. and Progesterone 12.5 mg. are given daily for three days and, it is claimed, causes bleeding within three further days in women who are not pregnant. However, as no one can be certain that the bleeding may not possibly be coming from an early miscarriage, this method of diagnosing pregnancy should be regarded as undesirable.

Infertility Due to Anovular Cycles.

The diagnosis of anovular menstruation can be made from studying basal-temperature charts or from endometrial biopsy in the second half of the cycle. In these cases a course of oestrogens combined with Progesterone may be tried, e.g., Stilboestrol 1 mg. or Ethinyloestradiol 0.05 mg. daily for three weeks, together with Ethisterone 25 mg. for the last week of the course.

Dysmenorrhoea.

It is well known that anovulatory menstruation is painless, and this knowledge may be used in treating cases of dysmenorrhoea. Ovulation may be suppressed by giving large doses of oestrogen, e.g., Stilboestrol 2.5 mg. or its equivalent daily for the first fourteen days of several successive courses.

Disorders of Pregnancy.

Oestrogen therapy is of little use in the treatment of the disorders of pregnancy. At one stage it was recommended for the induction of labour, the treatment of uterine inertia and to produce evacuation of the uterus in cases of missed abortion and missed labour. Recent work, however, has shown that oestrogen therapy is useless in these conditions. Priscilla White (1947) claimed that large doses of oestrogens

were effective in lowering the foetal mortality in cases of diabetes in pregnancy, but recent large scale surveys have shown that equivalent foetal salvage can be obtained by careful antenatal supervision and good diabetic control alone. Oestrogen therapy also had a vogue in the treatment of pre-eclampsia, eclampsia and in habitual and threatened abortions, but in view of the equivocal results, such treatment is no longer recommended.

The Progestogens

Progesterone is the hormone secreted by the corpus luteum under the influence of the pituitary luteinising hormone (L.H.). Progesterone in small amounts is also secreted by the adrenal cortex and in large amounts by the placenta. Progesterone is the hormone responsible for the maintenance of pregnancy. The breakdown product, after metabolism, is known as pregnanediol, and the quantities of this substance in the urine can be assayed by various laboratory methods.

Physiological Actions.

(1) It converts proliferative endometrium into secretory endometrium, thus creating a suitable environment for the nidation of the fertilised ovum. Once nidation takes place, progesterone is responsible for altering the secretory endometrium into the decidua.

(2) It produces hypertrophy of the uterine muscle and tends to slow down the normal rhythmical uterine contractions and decreases uterine tone.

(3) It relaxes smooth muscle, and this explains the frequency of varicose veins, hydroureter, constipation and piles in pregnancy.

(4) Progesterone stimulates the alveolar system of the breasts.

(5) It is responsible for a slight rise in the basal temperature, thus producing the typical biphasic monthly temperature chart.

(6) It induces sodium and fluid retention.

Progesterone in natural form is extracted from animal sources or it can be synthesised from cholesterol or plant sterols, and, in view of the complicated methods of manufacture, it tends to be expensive. It is administered intramuscularly in an oily solution.

Recently a progestogen known as Ethisterone has been synthesised. This can be given orally, but has only one-fifth of the potency of progesterone. Norethisterone is a more recent orally active preparation and is stated to be more potent than Ethisterone, having half the potency of progesterone by injection.

Progesterone pellets, for sub-fascial implantation, are also manufactured.

Therapeutic Indications.

There are few indications for progesterone therapy. Although progesterone is a progestational hormone, it has not been as effective in the treatment of pregnancy disorders as was at first anticipated.

Threatened Abortion.

It is known that progesterone decreases uterine tone and movements, and progesterone injections have been extensively used in the treatment of threatened abortion, but the results have been extremely poor and most clinicians have given up this form of therapy. The survival of the pregnancy obviously depends on the amount of placental damage. Where placental damage is severe, obviously nothing can save the pregnancy. In mild cases bleeding ceases on rest and sedation alone.

Habitual Abortion.

Progesterone implants have been in vogue during the past decade in the treatment of habitual abortion. Bishop and Richards (1952) recommended the sub-fascial implantation of six 25 mg. pellets of progesterone, the implantation being repeated at intervals of two months until delivery.

Several reports have appeared in the literature in which cases of habitual abortion have been treated with progesterone implants and the results compared with untreated cases (Swyer and Daley, 1953). It was found that there was no significant statistical difference between the results in the two groups. The progesterone implantation may, however, exert a psychotherapeutic effect.

Recently attention has been focussed on a not uncommon cause of habitual abortion, viz., cervical incompetence, in which the treatment is surgical and obviously hormone therapy plays no part. Repeated abortions occur regularly between the fourth and the seventh months, due to an incompetent cervical sphincter. At operation, the cervical canal is occluded and pregnancy usually continues to term (Shirodkar, 1953; Green-Armytage, 1957).

Functional Uterine Haemorrhage.

Progesterone alone is no longer used in the treatment of functional uterine haemorrhage.

Combined treatment with oestrogens and progesterone has been described above.

Premenstrual Tension.

Green and Dalton (1953) described the syndrome of premenstrual tension and claimed to have obtained relief in 83.5 per cent. cases using progesterone. They recommend injections of 25 mg. on alternate days during the second half of the cycle. Dalton (1957) states that she has used Ethisterone 30-150 mg. orally daily, but the results were not as satisfactory as in those cases treated by intramuscular injections of progesterone. Several authorities have recommended cutting salt-intake and ammonium chloride 7½-15 gr. daily, in addition to progesterone therapy, in order to deal with the water retention, which is a feature of this syndrome. Recently "Diamox" has been used for the same purpose. In those cases where psychological symptoms are particularly severe, "Myanesin" (mephenesin) elixir ½ fl oz. t.d.s. or "Myanesin" tablets 2 t.d.s. from the fifteenth to the twenty-fifth day of the cycle has been recommended.

It seems paradoxical that progesterone, a steroid hormone which itself causes fluid retention, is used to alleviate a syndrome in which fluid retention is a prominent feature, yet good results are claimed from progesterone therapy.

THE ANDROGENS

Testosterone is the male sex hormone secreted by the testes. Methyltestosterone is active when given by mouth. The androgens play only a small role in the treatment of female disorders, due to their tendency to produce virilisation. In the female a dosage of 150 mg. of testosterone proprionate each month, or 450 mg. of methyltestosterone orally per month, must never be exceeded, or hirsuites, voice changes and other symptoms of virilisation may result. These dangers must be kept in mind if the combined oestrogen-testosterone preparations are used in the treatment of the menopausal syndrome.

Recently several steroid substances which have weak androgenic activity compared with their protein anabolic effect have appeared on the market, but their value in the treatment of gynaecological disorders has not yet been adequately assessed. Methyltestosterone 25 mg. with Ethisterone 60 mg. three times a day for four days produces a "medical curettage" in cases of ovulatory functional uterine bleeding.

Frigidity.

Frigidity in the female responds fairly well to treatment with androgens, which produce a greater increase in libido than the female sex hormones. Methyltestosterone 10 mg. per day for three weeks, followed by an interval of two weeks, may be given and the course repeated once or twice if necessary. The patient must be kept under frequent observation during treatment, and if there is any suspicion of virilisation treatment must cease forthwith.

Androgens have been used in the treatment of endometriosis, premenstrual tension, suppression of lactation and postpartum breast engorgement; but as the dosage may be high and the consequent risk of virilisation increased, they are best avoided in these conditions, except on the advice of a consultant.

GONADOTROPHIC HORMONES

The pituitary gonadotrophins are the follicle-stimulating hormone (F.S.H.), the luteinising hormone (L.H.) and the lactogenic hormone (prolactin). Although extracts of the anterior pituitary have been prepared, these three substances have not as yet been separated chemically.

Serum gonadotrophin is available commercially and is extracted from the serum of pregnant mares. Chorionic gonadotrophin, prepared from the urine of pregnant women, is also available.

Although several claims have been made that pituitary serum or chorionic gonadotrophins have proved useful in the treatment of amenorrhoea, adolescent menorrhagia and infertility, as a whole, treatment with these hormones has proved to be disappointing and not without danger. Recently several reports have appeared in which, following gonadotrophin administration, the patients have developed the signs of intraperitoneal haemorrhage, and at laparotomy the ovaries were found to be grossly enlarged by numerous haemorrhagic follicular cysts.

USE OF OTHER HORMONES IN MENSTRUAL DISORDERS

Thyroid hormone has been recommended by several authorities in the treatment of menstrual disorders, although it is difficult to understand the rationale of such treatment. In cases of primary amenorrhoea, thyroid has often been prescribed. These cases are often associated with obesity and, if the obesity is treated, the periods often commence. Martin (1958) states: "The temptation to use thyroid in girls with amenorrhoea—whether obese or not—should be resisted, because it is correct treatment for neither amenorrhoea nor obesity."

Thyroid will remedy menorrhagia associated with myxoedema, but obviously it is the myxoedema one is treating in this case, the menorrhagia merely being a symptom.

Summary

(1) The actions, uses and dosages of hormone preparations used in gynaecological disorders have been shortly described.

(2) A plea is made for the employment of hormone therapy *only* after diagnosis has been established by full clinical and, if necessary, pathological examination. The haphazard use of these powerful substances, in the absence of definite indications, is condemned.

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