

Endocrinology: Single Best Answer questions

PROFESSOR KULENTHRAN ARUMUGAM



A previously fit woman presents to the endocrine clinic with enlarged hands and feet, jaw protrusion, arthralgia and excessive sweating. The most likely diagnosis is:

- ▶ A acromegaly
- ▶ B Addison's disease
- ▶ C Cushing's syndrome
- ▶ D Graves disease
- ▶ E hyperprolactinemia

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A 18 year old girl presents with delayed puberty as a result of hypogonadotropic-hypogonadism. Of the following, the most likely condition is:

- ▶ A Cushing's syndrome
- ▶ B McCune –Albright syndrome
- ▶ C Kallmann's syndrome
- ▶ D Conns syndrome
- ▶ E Pituitary prolactinoma

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A newborn baby presents with ambiguous genitalia. There is clitoromegaly and incomplete separation of the labia minora. A karyotype shows it to be XY. The most likely cause is:

- ▶ A congenital hypothyroidism
- ▶ B adrenal insufficiency
- ▶ C androgen insensitivity syndrome
- ▶ D congenital hyperthyroidism
- ▶ 5 alpha reductase deficiency

Answer

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The following conditions are known to be associated with precocious puberty:

- ▶ A craniopharyngioma
- ▶ B prolactinoma
- ▶ C hyperthyroidism
- ▶ D Cushing's syndrome
- ▶ E pyelonephritis

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In normal puberty for girls, the physical change that usually appears first is:

- ▶ A axillary hair growth
- ▶ B breast development
- ▶ C menstruation
- ▶ D pubic hair growth
- ▶ E growth spurt

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A 17 year old girl presents with primary amenorrhea. She appears phenotypically a normal female. She has good breast development but sparse pubic and axillary hair. The vagina ends in a shallow pouch. Testes are felt in the inguinal region. The most likely diagnosis is:

- ▶ A androgen insensitivity syndrome
- ▶ B McCune Albright syndrome
- ▶ C Kalman's syndrome
- ▶ D Congenital adrenal hyperplasia
- ▶ E Klinefelter's syndrome

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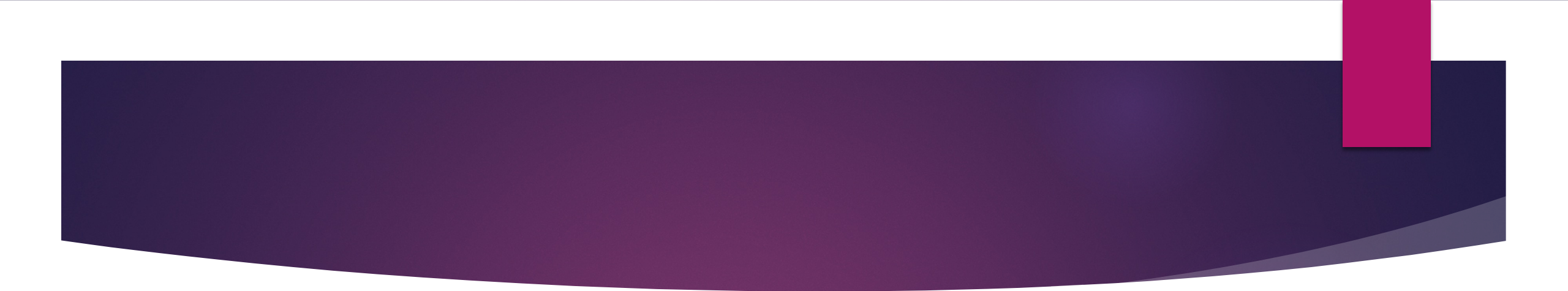
Which of the following drugs are characteristically associated with hyperprolactinemia:

- ▶ A alpha methyldopa
- ▶ B phenothiazines
- ▶ C metronidazole
- ▶ D labetalol
- ▶ E desogestrel

Answer

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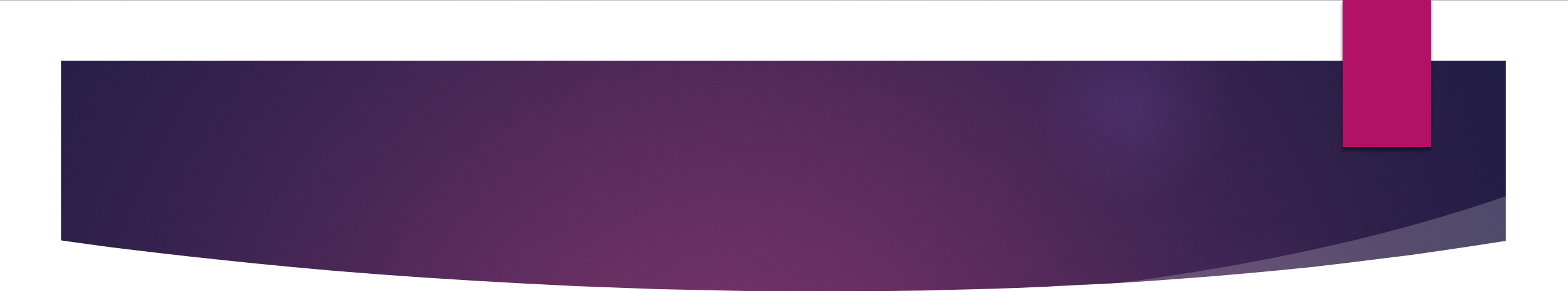
A 17 year old girl presents with primary amenorrhea. A clinical diagnosis of Turners syndrome (gonadal dysgenesis) has been made. The following are the appropriate hormonal profiles in her:

- ▶ A low estradiol, high FSH, high LH
- ▶ B low estradiol, high FSH, high LH, high testosterone
- ▶ C high estradiol, high FSH, high LH
- ▶ D high estradiol, low FSH, low LH
- ▶ E low estradiol, low FSH, low LH

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A mother brings her 16 year old daughter because she has not obtained her menstruation yet. Examination of the breasts show that it is in the breast bud stage with elevation of breast and papilla; there is enlargement of areola. Based on the Tanner staging, the breast would be classified as:

A prepubertal stage

B Stage 1

C Stage 2

D Stage 3

E Stage 4

Answer

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A prepubertal stage

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E Stage 4

A patient with Type 2 diabetes attends the obstetric endocrine clinic at 16 weeks gestation. She complains of lethargy, weight gain and constipation. Thyroid function test give the following results:

TSH : 10.2 mU/l (Normal: 0.35 -5.5 mU/l)
Free T4 : 0.4 pmol/l (Normal: 11-23 pmol/l)
Thyroid peroxidase antibodies : positive
Thyroid receptor antibodies : negative

The most likely diagnosis is :

- ▶ A Graves disease
- ▶ B Hashimoto's thyroiditis
- ▶ C iodine deficiency
- ▶ D previous treatment with radioactive iodine
- ▶ E Sheehan's syndrome

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A 40 year old woman presents to the endocrine clinic with anxiety, palpitations, sweating and weakness. She has an obvious goitre. What is the most likely cause for her hyperthyroidism:

- ▶ A Graves disease
- ▶ B thyroid follicular carcinoma
- ▶ C thyroiditis
- ▶ D toxic adenoma
- ▶ E toxic multinodular goitre

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A 33 year old primigravida and at 16 weeks presents with above values for her thyroid function test. These findings are consistent with:

TSH	TBG	Total T4	Total T3	Free T4	Free T3
normal	raised	raised	raised	normal	normal

- ▶ A Hashimoto's thyroiditis
- ▶ B Graves disease
- ▶ C multinodular goiter
- ▶ D normal pregnancy
- ▶ E thyroid adenoma

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The hormone that inhibits prolactin secretion from the pituitary gland is:

- ▶ A follicle stimulating hormone
- ▶ B dopamine
- ▶ C prolactin inhibitory factor
- ▶ D estradiol
- ▶ E inhibin

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Which is the type of tumor that increases growth hormone secretion from the pituitary gland and results in acromegaly:

- ▶ A adenoma
- ▶ B glioma
- ▶ C fibroma
- ▶ D sarcoma
- ▶ E epithelioma

Answer

Which is the type of tumor that increases growth hormone secretion from the pituitary gland and results in acromegaly:

- ▶ **A adenoma**
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An overweight 43 year old woman is referred with clinical appearance of Cushing's syndrome and a blood pressure of 170/90 mmHg. The best initial test to distinguish the diagnosis from simple obesity would be:

- ▶ A an adrenocorticotropin (ACTH) level
- ▶ B an adrenal MRI scan
- ▶ C a morning salivary cortisol level
- ▶ D a serum potassium level
- ▶ E 24 hour urinary free cortisol

Answer

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The typical metabolic abnormality seen in Addison's disease (hypoadosteronism) is:

- ▶ A metabolic acidosis
- ▶ B. metabolic alkalosis
- ▶ C respiratory alkalosis
- ▶ D respiratory acidosis
- ▶ E compensatory respiratory acidosis

Answer

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The hormone that stimulates chondrocyte proliferation and cartilage deposition in epiphyseal plates of bones is:

- ▶ A parathyroid hormone
- ▶ B calcitonin
- ▶ C calcitriol
- ▶ D thyroxine
- ▶ E growth hormone

Answer

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The acid-base imbalance commonly seen in a case of Conn's syndrome is:

- ▶ A normal acid base balance
- ▶ B metabolic acidosis
- ▶ C metabolic alkalosis
- ▶ D mixed metabolic and respiratory acidosis
- ▶ E respiratory acidosis

Answer

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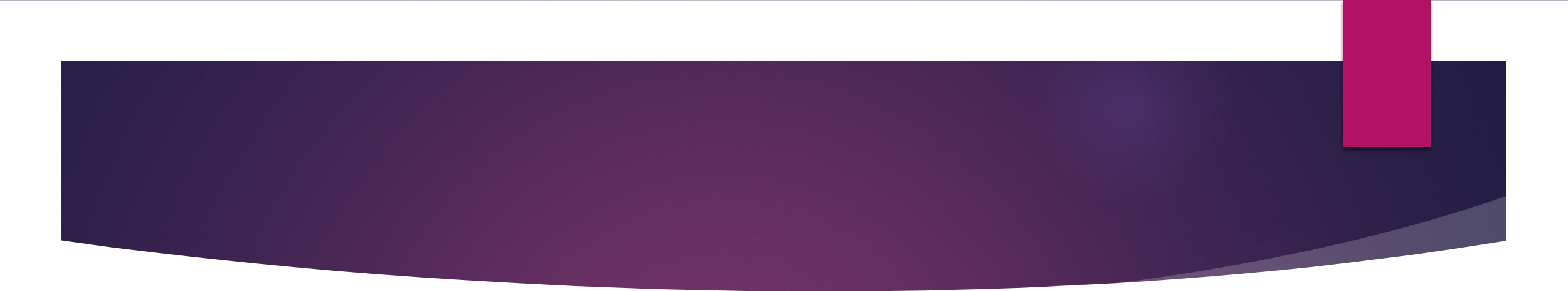
The type of cell that produces and secretes parathyroid hormone in the parathyroid gland is:

- ▶ A chief cells
- ▶ B oxyphilic cells
- ▶ C parafollicular cells
- ▶ D follicular cells
- ▶ E beta cells

Answer

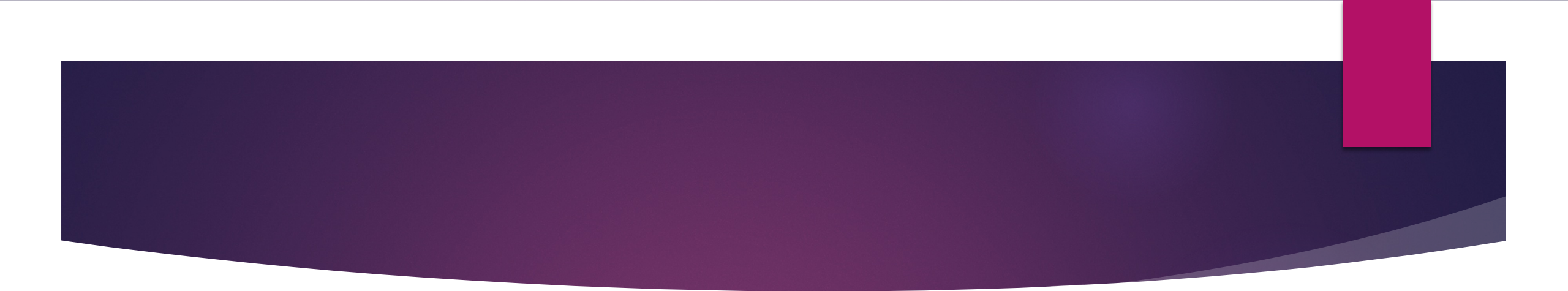
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In a hypertensive woman, which of the following is the likely finding in a patient with renal artery stenosis and would be helpful in distinguishing the condition from Conn's syndrome:

- ▶ A a high aldosterone level
- ▶ B a high renin and high aldosterone level
- ▶ C a high renin level
- ▶ D a low aldosterone level
- ▶ E a low renin and high aldosterone level



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The commonest form of congenital adrenal hyperplasia is 21- hydroxylase enzyme deficiency. The second most common form is:

- ▶ A 17-alpha hydroxylase deficiency
- ▶ B 11-beta-hydroxylase deficiency
- ▶ C lipoid congenital adrenal hyperplasia
- ▶ D 17-beta hydroxylase deficiency
- ▶ E 11- alpha hydroxylase deficiency

Answer

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What is the chemical structure of Gonadotrophin Releasing Hormone (GnRH):

- ▶ A glycoprotein
- ▶ B tripeptide
- ▶ C nonapeptide
- ▶ D octapeptide
- ▶ E decapeptide

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Which of the following statements is true of calcitonin:

- ▶ A it is produced by cells in the parathyroid gland
- ▶ B it causes a fall in blood calcium concentration
- ▶ C it causes calcium absorption from the intestines
- ▶ D it causes calcium retention in the kidney
- ▶ E it promotes bone reabsorption

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From which part of adrenal gland are glucocorticoids secreted:

- ▶ A zona pellucida
- ▶ B zona glomerulosa
- ▶ C zona fasciculata
- ▶ D zona reticularis
- ▶ E adrenal medulla

Answer

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The appropriate initial test to diagnose pheochromocytoma is:

- ▶ A blood glucose levels
- ▶ B 24 hour urinary cortisol levels
- ▶ C dexamethasone suppression test
- ▶ D 24 hour urinary catecholamine levels
- ▶ E 24 hour urinary ketosteroid levels

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A 32 year old lady presents with increased weight gain, hirsutism, deepening of voice, and mild clitoromegaly. Her serum levels of testosterone are raised. The most likely diagnosis is:

- ▶ A polycystic ovarian disease
- ▶ B Cushing's syndrome
- ▶ C Sertoli-leydig cell tumour of the ovary
- ▶ D acromegaly
- ▶ E granulosa cell tumour of the ovary

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A 32 year old female presents with raised blood pressure and hypokalemia. The appropriate screening test for her to establish the cause for her hypertension is :

- ▶ A 24 hour urinary catecholamines
- ▶ B dexamethasone suppression test
- ▶ C renal artery angiography
- ▶ D plasma aldosterone to renin ratio
- ▶ E electro-cardiogram

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The biochemical abnormalities that occurs in a patient with Addison's disease include:

- ▶ A hyponatraemia, hyperkalaemia, hypoglycaemia
- ▶ B hyponatraemia, hypokalaemia, hypoglycaemia
- ▶ C hypernatraemia, hypokalaemia, hyperglycaemia
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- ▶ E hypernatraemia, hypokalaemia, hypoglycaemia

NB: hypoglycemia is because of glucocorticoid deficiency



A 32 year old female has been diagnosed with Addison's disease (hypoadrenalism). The following are her likely symptoms:

- ▶ A weakness
- ▶ B weight loss
- ▶ C pigmentation
- ▶ D salt craving
- ▶ E all of the above

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According to the WHO criteria, the following blood glucose levels are most appropriate for a patient diagnosed to have gestational diabetes mellitus:

- ▶ A a random blood blood glucose concentration of ≤ 10 mmol/l
- ▶ B a fasting plasma glucose concentration of at least <7 mmol/l
- ▶ C a plasma concentration of at least 7.8 mmol/l, 2 hours after administration of 75g anhydrous glucose in an oral glucose tolerance test
- ▶ D a plasma concentration of at least 10 mmol/l, 1 hour after administration of 75g anhydrous glucose in an oral glucose tolerance test
- ▶ E a plasma concentration of at least 11.1 mmol/l, 2 hours after administration of 75g anhydrous glucose in an oral glucose tolerance test and a fasting plasma concentration of ≤ 6.5 mmol/l

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A 17year old male has delayed puberty. In addition he has small genitalia and has a decreased sense of smell. The most likely diagnosis is:

- ▶ A Kalman's Syndrome
- ▶ B Kartagener syndrome
- ▶ C Klinefelter's syndrome
- ▶ D Young's syndrome
- ▶ E Sawyer's syndrome

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Which of the following is true regarding carbohydrate metabolism after 48 hours of fasting:

- ▶ A amino-acids become an important source of substrates for glucose synthesis
- ▶ B fatty-acids provide 40% of the substrates for glucose synthesis
- ▶ C glucagon levels are lowered
- ▶ D ketonuria is not common
- ▶ E liver glycogen is now an important source of glucose

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Glucagon is secreted by the:

- ▶ A alpha cells in the pancreas
- ▶ B beta cells in the pancreas
- ▶ C liver
- ▶ D pancreatic acini
- ▶ E adrenal cortex

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The following increase the rate of insulin secretion in a normal non-pregnant individual:

- ▶ A glucagon
- ▶ B sucrose
- ▶ C adrenaline
- ▶ D noradrenaline
- ▶ E thyroxine



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A 40 year old female presents with recurrent abdominal pains, backache, and occasional hematuria. The most likely diagnosis is:

- ▶ A hyperthyroidism
- ▶ B osteoporosis
- ▶ C renal calculi
- ▶ D hyperparathyroidism
- ▶ E hyperaldosteronism

Answer

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The most common form of thyroid disease seen in women of the reproductive age group is:

- ▶ A Hashimoto's thyroiditis
- ▶ B Graves disease
- ▶ C multinodular goiter
- ▶ D simple nodular goiter
- ▶ E thyroid carcinoma

Answer

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The enzyme that activates vitamin D in the kidney to calcitriol is:

- ▶ A 17- alpha-hydroxylase
- ▶ B glucose 6 phosphate dehydrogenase
- ▶ C 17- beta-hydroxylase
- ▶ D 1- alpha-hydroxylase
- ▶ E 1- beta- hydroxylase

Answer

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A 42 year old lady presents with irregular menstrual cycles over the past 3 years and for the past six months has stopped completely. Her hormonal profiles reveal the following:

Low progesterone; Normal FSH, Normal LH; Marginally high Thyroid stimulating hormone; Slightly high serum prolactin; low serum estradiol

The most likely diagnosis is:

- ▶ A primary ovarian failure
- ▶ B premature menopause
- ▶ C hypothyroidism
- ▶ D prolactinoma
- ▶ E hyperthyroidism

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Which of the following statements are true as regards the role of parathyroid hormone in bone and calcium metabolism:

- ▶ A primary hyperparathyroidism is characterized by high serum parathyroid hormone and low calcium levels
- ▶ B parathyroid hormone decreases renal synthesis of calcitriol
- ▶ C secretion of parathyroid hormone is increased by a decrease in Ca^{2+}
- ▶ D vitamin D is activated in the liver by parathyroid hormone
- ▶ E parathyroid hormone stimulates reabsorption of calcium in the intestines

Answer

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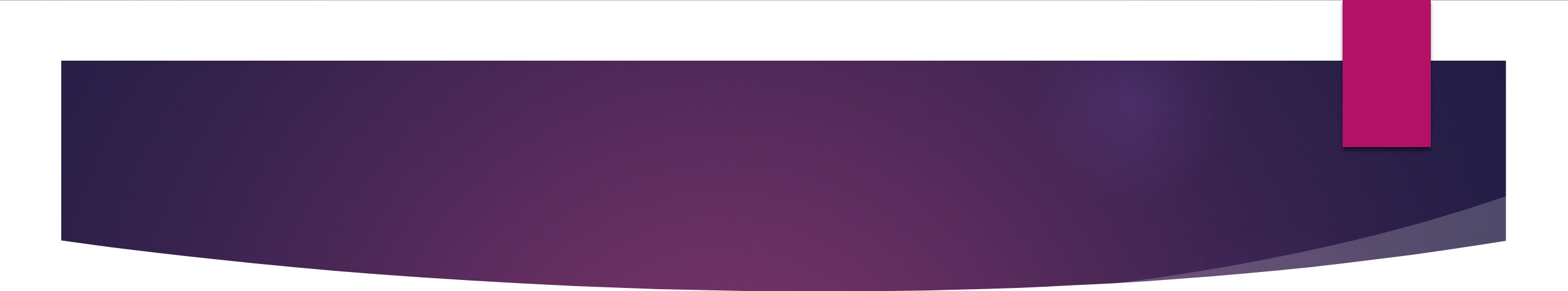
The following hormones stimulate the formation of glucose from amino acids in the liver:

- ▶ A insulin
- ▶ B growth hormone
- ▶ C cortisol
- ▶ D glucagon
- ▶ E thyroxine

Answer

The following hormones stimulate the formation of glucose from amino acids in the liver:

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- ▶ **D glucagon**
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A 36 year old lady has undergone a thyroidectomy for an adenoma. Post surgery she suffers from tetany of her hands. She probably has:

- ▶ A reduced Vitamin D
- ▶ B hypomagnesia
- ▶ C parathyroid hormone deficiency
- ▶ D low calcium gluconate levels
- ▶ E hyperkalemia

Answer

A 36 year old lady has undergone a thyroidectomy for an adenoma. Post surgery she suffers from tetany of her hands. She probably has:

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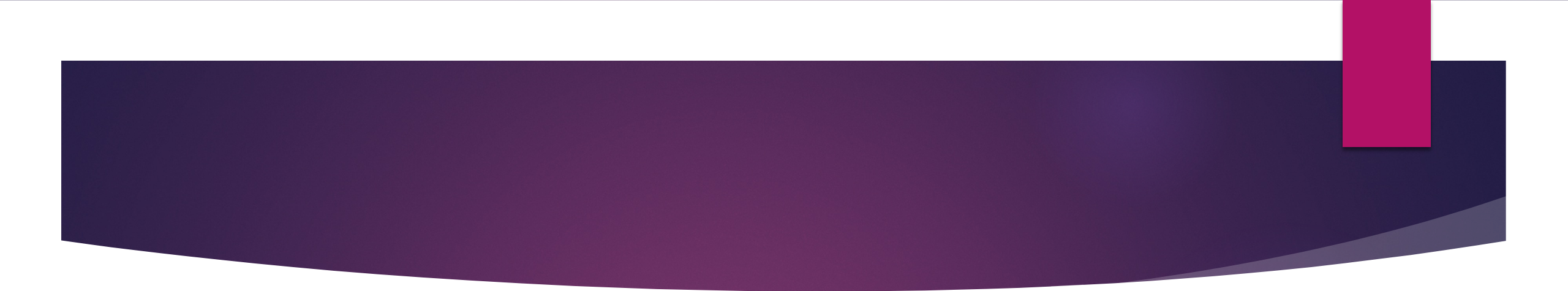
After ingestion of a protein rich meal, the following hormonal changes may be seen:

- ▶ A insulin increases but glucagon decreases
- ▶ B insulin increases and glucagon increases
- ▶ C insulin decreases but glucagon increases
- ▶ D insulin decreases and glucagon decreases
- ▶ E there is no change in either insulin or glucagon

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Which of the following situations or substances cause a decrease in absorption of calcium from the gut:

- ▶ A phytates
- ▶ B young children
- ▶ C Vitamin D
- ▶ D lactose
- ▶ E pregnancy



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- ▶ **A phytates**
- ▶ B young children
- ▶ C Vitamin D
- ▶ D lactose
- ▶ E pregnancy



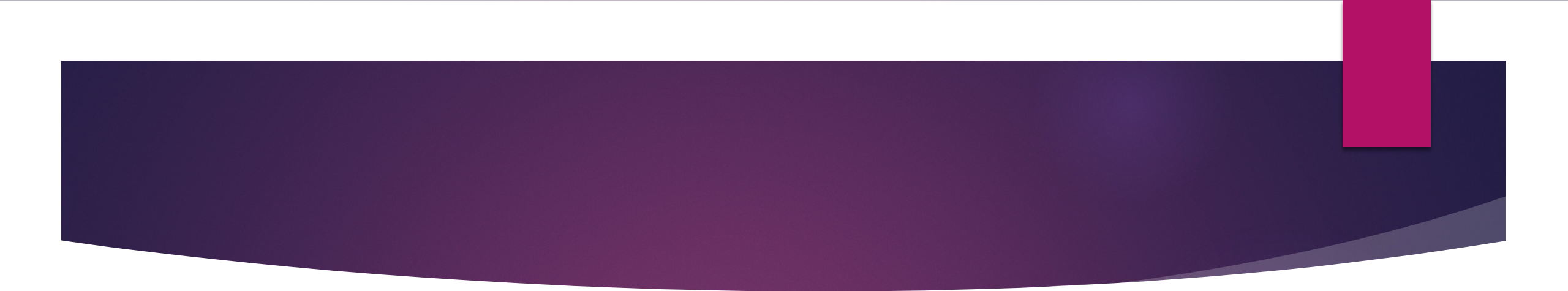
A 65 year old lady presents with severe backache. She has been diagnosed to have osteoporosis. Based on a DEXA scan result, she is likely to have a T Score of:

- ▶ A above - 2
- ▶ B above - 1
- ▶ C above 0
- ▶ D below -1
- ▶ E below - 2

Answer

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- ▶ A above - 2
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According to the NICE guidelines, the recommended treatment of choice for women to prevent osteoporotic fractures is:

- ▶ A raloxifene
- ▶ B denosumab:
- ▶ C teriparatide
- ▶ D bisphosphonates
- ▶ E calcitriol

Answer

According to the NICE guidelines, the recommended treatment of choice for women to prevent osteoporotic fractures is:

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- ▶ **D bisphosphonates**
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Thank you