

II Paper: Technical subject

1. Diabetes Mellitus

- 1.1 Historical background and epidemiology of Diabetes; Burden of Disease of Diabetes
- 1.2 Classification, aetiology, pathogenesis, natural history clinical features, diagnosis and management of Type 1 and Type 2 Diabetes
- 1.3 Diagnosis and treatment of prediabetes and its clinical implications and prevention
- 1.4 Diagnose and manage diabetic nephropathy and its various stages and differential diagnosis. Management of NODAT and PTDM; Diabetes management during hemodialysis
- 1.5 Biosynthesis, processing and secretion of Islet Hormones: Insulin, Glucagon mechanism action and function
- 1.6 Types of insulin, Various modalities of insulin delivery eg, syringes, pens, insulin pumps, inhalers, Insulin regimens and insulin dose adjustments, artificial pancreas
- 1.7 Laboratory investigation and interpretation of lab tests in diabetes
- 1.8 Methods of monitoring glycemic control, home glucose monitoring glucometers, continuous glucose monitoring systems.
- 1.9 Medical nutrition therapy and life style modifications in diabetes. Dietary advice in diabetes. Different types of diet like Keto diet, intermittent fasting
- 1.10 Misconceptions and facts in diet for diabetes. Use or misuse of various herbs and plants as local remedy for high sugar
- 1.11 Development of drugs and oral antidiabetic medications and their appropriate use
- 1.12 Use of GLP 1 agonist and other injectable drugs in diabetes
- 1.13 Pancreas, Kidney and stem cell transplantation in diabetes
- 1.14 Management of diabetes during acute illness or surgery, fasting and other religious occasions, sick days and travel; Management of hypertension in people with diabetes; Management of acute hyperglycemic complications like DKA and HONK, Renal disease; Approach to Secondary diabetes and its management
- 1.15 Diabetes and pregnancy; Preconception planning in women with diabetes and management of pregnancy with overt diabetes; Contraception and Diabetes, family planning in diabetes and termination of pregnancy in indicated cases; Investigate and manage erectile dysfunction in diabetic men and sexual dysfunction in women
- 1.16 Pathogenesis and approach/management to various chronic complications of diabetes.
- 1.17 Diabetes and peripheral vascular disease, Approach to prevention and management of diabetic foot.
- 1.18 Prevention, approach and management of gestational diabetes;
- 1.19 Diabetic and non-Diabetic hypoglycaemia; avoidance, recognition, correction and implications of hypoglycaemia; Neonatal hypoglycemia, hypoglycemia in infants and children
- 1.20 Diabetes and other conditions: Diabetes and NCDs; Skin Manifestations in Diabetes; Periodontal Diseases and Diabetes; Diabetes and Dyslipidemia; Diabetes, non-alcoholic fatty liver disease; NAFLD and other liver diseases; Psychology and psychiatric aspects of diabetes, Diabetes Distress; Diabetes and eye disorders, Management of retinopath, maculopathy, Cataract in diabetes
- 1.21 Infections in Diabetes, vaccinations in diabetes
- 1.22 Diabetes in neonates, children, adolescent and Elderly population
- 1.23 Major updated Guidelines WHO, ADA, IDF, NICE, AACE, ESE, JCEM (related to DM)
- 1.24 Community screening for diabetes; Exercise and physical activity for people with diabetes; Various aspects of employment, driving issues in people with diabetes

2. Obesity and Dyslipidemia

- 2.1 Approach to obesity and complications of obesity; Diseases associated with obesity; Management of obesity (OSA, CVD); Genetic Syndromes associated with obesity (Prader Willi, Bardet Bietl)
- 2.2 Management of dyslipidemia, primary and secondary dyslipidemia
- 2.3 Various types of lipids and their production, transport and effects; Lipodystrophy Syndromes (Lawrence Syndrom)
- 2.4 Assess cardiovascular risk in relation to the lipid profile
- 2.5 Appetite regulation and thermogenesis (energy expenditure, hormones Ghrelin, neuropeptides)
- 2.6 Anorexia Nervosa, bulimia and other associated eating disorders
- 2.7 Obesity, metabolic syndrome and dyslipidemia in children
- 2.8 Approach and management of Metabolic Syndrome; Dietary and physical activity and exercise for obesity, dyslipidemia and metabolic syndrome

3. Thyroid Disorders

- 3.1 Explain disease states in terms of disorders of the physiology and biochemistry of thyroid hormone. Relevant clinical examination and thyroid anatomy including development, thyroid hormone synthesis, secretion, regulation, functions and metabolism
- 3.2 Epidemiology and burden of thyroid disorders
- 3.3 Interpret thyroid function test results both to diagnose disease and recognise assay interferences, thyroid antibodies
- 3.4 Diagnose and manage simple non-toxic goitre, multinodular goitre & solitary thyroid nodules
- 3.5 Fine needle aspiration cytology of the thyroid, interpretation of FNAC and histopath reports
- 3.6 Diagnose and manage Graves' disease and other causes of thyrotoxicosis like AFTN and TMNG
- 3.7 Thyroid disorders in the new born and childhood
- 3.8 Manage thyroid emergencies, including thyroid patients in intensive care, sick euthyroid syndrome
- 3.9 Provide perioperative care for patients with thyroid issues undergoing thyroid and non-thyroid surgery (particularly preoperative preparation)
- 3.10 Investigate and manage patients with thyroid eye disease
- 3.11 Diagnose and manage primary and secondary hypothyroidism
- 3.12 Participate in the multidisciplinary care of patients with thyroid cancer
- 3.13 Manage thyroid disorders before, during and after pregnancy
- 3.14 Approach to thyroiditis and its management
- 3.15 Dietary advice in thyroid disorders; Misconceptions and facts; Advice regarding associated weight loss, obesity and dyslipidemia
- 3.16 Devising a plan for national program for screening of congenital hypothyroidism
- 3.17 Iodination of salt programs, evaluation of its efficacy and monitoring
- 3.18 Various modalities of thyroid imaging
- 3.19 Community screening for thyroid disorders
- 3.20 Thyroid Cancer: precaution, approach and management

4. Pituitary Disorders

- 4.1 Development of pituitary gland and hypothalamus and relevant anatomy physiology and hormone regulations

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- 4.2 Histology, physiology and histopathology of Pituitary, hypothalamus
- 4.3 Various lab test done to assess pituitary and hypothalamic function, suppression and stimulation tests
- 4.4 Diagnose and management of functioning and non-functioning pituitary tumours and the role of multidisciplinary approach
- 4.5 Diagnose and manage diabetes insipidus; SIADH, thirst dysregulation and other disorders of water balance
- 4.6 Diagnose and monitor optic nerve compression and other space occupying effects; Provide immediate and long term care to patients with the mass effects of pituitary enlargement
- 4.7 Various modalities of pituitary imaging
- 4.8 Diagnose and manage hypopituitarism
- 4.9 Basic concepts of pituitary surgery and radiotherapy
- 4.10 Manage patients before, during and after surgery for pituitary tumours
- 4.11 Hypothalamic disorders, approach and management
- 4.12 Malignant tumours of pituitary (lymphomas, metastatic)
- 4.13 Pineal Gland and Melatonin
- 4.14 Childhood pituitary tumours and their management
- 4.15 Management of pregnancy in people with pituitary disease like pregnancy with prolactinoma, acromegaly
- 4.16 Management of non-pituitary surgery in patients with pituitary disorders

5. Growth and reproductive health

- 5.1 Embryology and development of gonads, genitals and related sexual organs
- 5.2 Gonadotrophins, synthesis and regulations, secretion
- 5.3 Puberty and its physiology
- 5.4 Spermatogenesis and testicular functions and hypogonadism, Semen analysis
- 5.5 Ovary and oocyte development
- 5.6 Perform and interpret tests of the hypothalamo-pituitary-gonadal axis
- 5.7 Female reproduction, menstrual cycle and pregnancy and hormonal changes
- 5.8 Concept and role of Karyotype in sexual and growth disorders
- 5.9 Investigate and manage primary and secondary gonadal failure
- 5.10 Assess, investigate and manage women with hirsutism/virilism PCOS
- 5.11 Assessment and management to an infertile couple, concepts of ART, IUI, IVF
- 5.12 Investigate and manage common chromosomal disorders such as Turner's, Klinefelter's syndromes, Caloran's syndrome
- 5.13 Assess, investigate and manage women with menstrual disturbance
- 5.14 Diagnosis and treatment of disorders of sexual development
- 5.15 Investigate and manage men with gynaecomastia,
- 5.16 Various imaging modalities for reproductive health
- 5.17 Endocrinology of BPH and prostatic cancer
- 5.18 Testicular and ovarian malignancies
- 5.19 Libido and sexual function disorders
- 5.20 Aberrant conditions of growth and puberty
- 5.21 Testicular disorders cryptorchidism, hypospadiasis and testicular tumours
- 5.22 Menstrual cycle irregularities and disorders
- 5.23 Approach to DSD; Differential diagnosis and management
- 5.24 Role of hormones in the management of endometriosis, breast disorders and uterine fibroids

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- 5.25 The Endocrinology of sexual behaviour and gender identity; Transgender Hormonal support
- 5.26 Performance enhancing hormones in sport doping
- 5.27 Management of menopause and andropause
- 5.28 Approach to recurrent miscarriage

6. Calcium, parathyroid and bone metabolism

- 6.1 Regulation of calcium , phosphate homeostasis and bone mineral metabolism functions and its disorders
- 6.2 Normal bone synthesis and its abnormalities
- 6.3 Vitamin D and PTH synthesis, metabolism, actions and clinical applications and associations, Vitamin D Toxicity
- 6.4 Hypoparathyroidism and its various disorders including other skeletal disorders
- 6.5 Osteoporosis, Paget's Disease, Disorders of mineralization and other metabolic bone disease
- 6.6 Hypomagnesia and hypermagnesia; Hyperphosphotemia and hypophosphotemia
- 6.7 Treatment of vitamin D deficiency and calcium supplementation in children, pregnancy, lactation and adults
- 6.8 Normal growth and approach and management of tall and short statures
- 6.9 Chronic kidney disease and mineral bone disorders
- 6.10 Fibroblast growth factors
- 6.11 Parathyroid surgery and perioperative care with long term management
- 6.12 Metabolic evolution of renal stones
- 6.13 Management of hyper and hypocalcemia including emergency and critical care and perioperative period
- 6.14 Rickets and related disorders

7. Adrenal Glands

- 7.1 Embryological development of adrenal gland
- 7.2 Adrenal anatomy physiology, functions and axis regulation
- 7.3 Adrenal steroidogenesis and its disorders regarding corticosteroids, mineralocorticoids and sex hormones
- 7.4 Perform and interpret tests of adrenal function
- 7.5 Approach and management of Cushing's syndrome, Pheochromocytoma, endocrine hypertension
- 7.6 Investigate and manage suspected primary and secondary adrenal failure
- 7.7 Investigate and manage patients with suspected adrenal tumours
- 7.8 Provide peri-operative care for patients with suspected or proven adrenal insufficiency
- 7.9 Imaging of adrenal disorders
- 7.10 Glucocorticoid and aldosterone Synthesis, action and physiology; Glucocorticoid therapy its complications and management
- 7.11 Adrenal Malignancy approach to incident to ions

8. Miscellaneous Endocrine Issues

- 8.1 Immunoendocrinopathy Syndromes Polyglandular Syndromes APS 1, 2, POEMS, insulin autoantibodies
- 8.2 Endocrinological aspects in various syndromic disorders such as MEN syndrome, Medullary cancer, carcinoid syndrome, Ectopic hormone syndromes
- 8.3 Pathogenesis of Endocrine Tumours

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- 8.4 Endocrine Management of cancer survivor, Investigate and manage the 'late endocrine effects' of treatment for cancer
- 8.5 Neuroendocrine Tumours of GI tract, lungs. Gut Hormones and Gastrointestinal tumours
- 8.6 PET Scans PET CT imaging
- 8.7 Bone scans
- 8.8 Acid Base Imbalance and renal tubular acidosis
- 8.9 Endocrinology of HIV AIDS
- 8.10 Investigate and manage acute and chronic hypo- and hypernatraemia
- 8.11 Investigate and manage disorders of potassium and magnesium homeostasis
- 8.12 Manage metabolic disorders of lipids, carbohydrates and protein metabolism related disorders and inborn errors of metabolism
- 8.13 Genetics and hereditary aspects of endocrine disorders
- 8.14 Laboratory techniques in measurement of various hormones and other related substances, their strengths and pitfalls
- 8.15 Endocrinology of the heart, kidney
- 8.16 Basic structure of hormones, their secretion patterns signalling pathways, synthesis and regulation etc
- 8.17 Basic knowledge of endocrine surgery and help in development of Endocrine Surgery as a separate subspecialty entity (for large volume cases at a particular referral centre which can then be expanded as a training and research centre for Endocrine Surgery)
- 8.18 Various drugs used in treatment of endocrine disorders, their side effects and drug interactions

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