## **Study Material: Hormonal Contraceptives – A Case Study-Based Approach**

### **1. Introduction to Hormonal Contraceptives**

Hormonal contraceptives are medications used to prevent pregnancy by influencing the hormonal cycle that regulates ovulation and menstruation. These include a range of methods like oral pills, injectables, implants, IUDs, and transdermal systems.

**Learning Objectives:**

* Understand the pharmacology and mechanisms of hormonal contraceptives.
* Identify appropriate contraceptive methods based on patient-specific factors.
* Recognize non-contraceptive benefits and possible adverse effects.
* Apply case-based reasoning to real-life contraceptive counseling scenarios.

### **2. Mechanism of Action**

Hormonal contraceptives primarily function by:

* **Suppressing ovulation** (via inhibition of LH and FSH).
* **Thickening cervical mucus** to prevent sperm penetration.
* **Altering endometrial lining** to prevent implantation.

#### Types:

| **Method** | **Main Components** | **Action** |
| --- | --- | --- |
| Combined Oral Contraceptives (COCs) | Estrogen + Progestin | Ovulation suppression |
| Progestin-only pills (POPs) | Progestin | Cervical mucus thickening |
| Injectables (e.g., DMPA) | Progestin | Ovulation inhibition (long-acting) |
| Implants | Progestin | Long-term ovulation suppression |
| Hormonal IUD | Progestin | Endometrial thinning + mucus thickening |
| Transdermal Patch | Estrogen + Progestin | Weekly application, systemic effect |
| Vaginal Ring | Estrogen + Progestin | Local release with systemic absorption |

### **3. Case Studies and Clinical Decision-Making**

#### ****Case 1: Young Nulliparous Woman with Irregular Menses****

* **Age**: 22
* **Issue**: Irregular periods and acne
* **Objective**: Contraception + menstrual regulation
* **Recommendation**: COC with anti-androgenic progestin (e.g., drospirenone)
* **Rationale**: Regulates cycles, reduces acne, reversible

#### ****Case 2: Woman with History of DVT****

* **Age**: 32
* **History**: Deep vein thrombosis (DVT) 2 years ago
* **Objective**: Long-term reversible contraception
* **Contraindication**: Estrogen
* **Recommendation**: Progestin-only methods (POP, implant, or LNG-IUD)
* **Rationale**: Safe in thrombosis risk, no estrogen exposure

#### ****Case 3: Postpartum Lactating Mother****

* **Age**: 28
* **Status**: Breastfeeding 6 weeks postpartum
* **Objective**: Delay next pregnancy
* **Recommendation**: Progestin-only pill or DMPA injection
* **Rationale**: Estrogen suppresses milk, progestin-only safe

#### ****Case 4: Adolescent Seeking Privacy****

* **Age**: 17
* **Need**: Discreet, long-acting contraception
* **Recommendation**: Implant or hormonal IUD
* **Rationale**: Long-acting, high compliance, low visibility

### **4. Benefits of Hormonal Contraceptives**

* Contraception
* Menstrual regulation
* Treatment of PCOS, acne, endometriosis
* Reduction in menstrual pain and blood loss
* Lower risk of ovarian and endometrial cancers

### **5. Risks and Side Effects**

* **Common**: Nausea, spotting, weight changes, mood swings
* **Serious** (esp. with estrogen): DVT, hypertension, stroke (in predisposed individuals)
* **Contraindications**:
	+ Smokers >35 years (for COCs)
	+ History of thromboembolism
	+ Liver disease
	+ Uncontrolled hypertension

### **6. Patient-Centered Contraceptive Counseling**

Factors to assess:

* Medical history
* Lifestyle and preference
* Fertility plans
* Contraindications
* Adherence ability

**WHO Medical Eligibility Criteria (MEC)** should be used as a reference guide in selecting methods.

### **7. Summary Table: Hormonal Contraceptives Comparison**

| **Method** | **Duration** | **Compliance Need** | **Fertility Return** | **Estrogen Involved?** | **Notes** |
| --- | --- | --- | --- | --- | --- |
| COC | Daily | High | Immediate | Yes | May regulate cycles |
| POP | Daily | High | Immediate | No | Safe in lactation |
| DMPA Injection | 3 months | Low | Delayed | No | May cause weight gain |
| Implant | 3–5 years | Low | Immediate | No | Minimal systemic exposure |
| LNG-IUD | 3–5 years | Low | Immediate | No | Reduces bleeding |
| Patch | Weekly | Medium | Immediate | Yes | Skin irritation possible |
| Ring | Monthly | Medium | Immediate | Yes | Self-inserted |