MULTIPLE VITAMINS

multiple vitamins (oral)

multivitamin infusion (intravenous)
B complex with Can R, Compound-12, Multi V-Chin-Concentrate, NY-1, M-V-1

Pediatric
Classification
Therapeutic: vitamins
Pregnancy Category UK

Indications
PO: Treatment and prevention of vitamin deficiencies. Special formulations are available for patients with particular needs, including: Prenatal multiple vitamins (with larger doses of folic acid), Preconceptional multiple vitamins, Multiple vitamins with iron, Multiple vitamins with fluoride, Multiple vitamins with other minerals or trace elements. IV: Treatment and prevention of vitamin deficiencies in patients who are unable to receive oral feedings or vitamins.

Action
Contains fat-soluble vitamins (A, D, and E) and most water-soluble vitamins (B-complex vitamins B1, B2, B3, B5, B6, B12, vitamin C, biotin, and folic acid). These vitamins are a diverse group of compounds necessary for normal growth and development. Many act as coenzymes or catalysts in numerous metabolic processes. Liquid preparations do not contain folic acid.

Therapeutic Effects:
PO: Prevention of deficiency or replacement in patients whose nutritional status is questionable.
IV: Replacement in patients who are unable to receive oral feedings or vitamins.

Pharmacokinetics
Absorption: Well absorbed from the GI tract after oral administration; some processes are active, some are passive. Absorption of water-soluble vitamins generally increases in deficiency states. Absorption of some lipid-soluble vitamins may require bile acids.

Distribution: Widely distributed, crosses the placenta and enters breast milk. Fat-soluble vitamins (A, D, E, and K) are stored in fatty tissues and the liver.

Metabolism and Excretion: Utilized in various biological processes. Excess amounts of water-soluble vitamins (B vitamins, vitamin C, and folic acid) are excreted unchanged by the kidneys.

Half-life: Unknown.

CONTRAINDICATIONS
Contraindicated in:
Hypersensitivity to preservatives, colorants, or additives, including tartrazine, saccharin, and aspartame (oral forms); Some products contain alcohol and should be avoided in patients with known intolerance.

Use Cautiously in:
Patients with anemia of undetermined cause.

Adverse Reactions/Side Effects
In recommended doses, adverse reactions are extremely rare.
GU: Urine discoloration (preparations with B vitamins).
Misc: Allergic reactions to preservatives, additives, or colorants.

Interactions
Drug-Drug: Large amounts of vitamin B may interfere with the beneficial effect of levodopa.

ROUTE/DOSAGE
PO (Adults and Children): 1 dose unit (tablet/capsule/dropperful)/day or amount recommended by individual manufacturer.
IV (Adults and Children): Amount sufficient to meet RDA for age group. Usually added to large-volume parenteral or total parenteral nutrition (TPN) solutions.

NURSING IMPLICATIONS
Assessment:
Assess patient for signs of nutritional deficiency before and throughout therapy.

Patients at risk include geriatric patients and those who are debilitated, burned, or critically ill.

ROUTE/ONSET/PEAK/DURATION

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NURSING IMPLICATIONS
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Patients at risk include geriatric patients and those who are debilitated, burned, or critically ill.
unable to take oral nutrition and those with malabsorption syndromes or chronic alcoholism.

Toxicity and Overdose:
Toxicity rarely occurs with multivitamin preparations because of the small amounts per unit of fat-soluble vitamins. For symptoms, see individual vitamin entries.

If overdose occurs, treatment includes induction of emesis or gastric lavage, calcium gluconate IV if hypocalcemic, and maintenance of high urinary output.

Potential Nursing Diagnoses
Imbalanced nutrition: less than body requirements (Indications)

Implementation

Vitamins are usually given orally but may be given parenterally to patients in whom oral administration is unfeasible.

Combination with folic acid requires a prescription.

PO:
Forms are not standardized.

Chewable tablets should be crushed or chewed before swallowing.

Liquid preparations may be dropped directly into the mouth or mixed with juice or cereal.

IV Administration

IV:
Administer multivitamin infusion by infusion only; do not use direct IV injection.

Solution is bright yellow and will color IV solutions and stain clothing.

Continuous Infusion:
Diluent: Dilute each 5- or 10-mL ampule in 500–1000 mL of D5W, D5/0.9% NaCl, D5W, D20W, lactated Ringer's injection, 0.9% NaCl, 3% NaCl, or 1/6 M sodium lactate. Do not administer solution that has crystallized.

Y-Site Compatibility:
acetate, alfentanil, amikacin, amphotericin B, aminophylline, aspirin, aztreonam, benzylpenicillin, benzphetamine, bezafibrate, bleomycin, busulfan, calcium acetate, calcium amethocaine, calcium gluconate, calcium gluceptate, calcium hydroxymetaphosphate, calcium hydroxypropylcellulose, calcium lactobionate, calcitonin, calcipotriol, calcitriol, captopril, cefazolin, cefepime, cefotaxime, cefuroxime, chloramphenicol, chlorpromazine, clofibrat