penicillin V

- Apo-Pen VK, - ValuPen V, - Novo-Pen VK, - Novo-V, - PVFK

**Classification**
- Therapeutic: - anti-infection
- Pharmacologic: - penicillins

**Pregnancy Category:** B

**Indications**
- Treatment of a wide variety of infections including: Pneumococcal pneumonia, Strep-
- toccocal pharyngitis, Syphilis, Gonorrhea strains. Treatment of enterococcal infec-
- tions (requires the addition of an aminoglycoside). Prevention of rheumatic fever.
- Should not be used as a single agent to treat anthrax.

**Action**
- Binds to bacterial cell wall, resulting in cell death.
- Therapeutic Effects: - Bacteri-
- cidal action against susceptible bacteria.
- Spectrum: - Active against: Most gram-pos-
- itive organisms, including many streptococci (Streptococcus pneumoniae, group A
- beta hemolytic streptococci), staphylococci (non–penicillinase-producing strains)
- and Bacillus anthracis, Some gram-negative organisms, such as: Neisseria menin-
- gitidis and N. gonorrhoeae (only penicillin susceptible strains), Some anaerobic
- bacteria and spirochetes including: Borrelia burgdorferi.

**Pharmacokinetics**
- Absorption: Variably absorbed from the GI tract. Resists acid degradation in the GI
- tract.
- Distribution: Widely distributed, although CNS penetration is poor in the presence
- of normal (uninflamed) meninges. Crosses the placenta and enters breast milk.
- Protein Binding: 60%.
- Metabolism and Excretion: Minimally metabolized by the liver, excreted
- mainly unchanged by the kidneys.
- Half-life: 30– 60 min.

**Contraindications/Precautions**
- Contraindicated in: - Previous hypersensitivity to penicillins (cross-sensitivity ex-
- ists with cephalosporins and other beta-lactam antibiotics); Some products may con-
- tain tartrazine and should be avoided in patients with known hypersensitivity.
- Use Cautiously in: - Severe renal insufficiency (dosage reductions recommended);
- OB: Although safety not established, has been used safely; Lactation: Safety not es-
- tablished; Geri: Consider body mass, age-related renal/hepatic/cardiac func-
- tion, concurrent illnesses and drug therapy.

**Adverse Reactions/Side Effects**
- CNS: - SEIZURES.
- GI: - diarrhea, epigastric distress, nausea, vomiting, pseudomem-
- branous colitis.
- GU: - interstitial nephritis.
- Derm: - rash, urticaria.
- Hemat: - eosino-
- philia, leukopenia.
- Misc: - allergic reactions including ANAPHYLAXIS and SERUM SICK-
- ness, superinfection.

**Interactions**
- Drug-Drug: - Penicillin may effect oral contraceptive agents. Probene-
- cid may affect plasma and urine 
- blood levels of penicillin (therapy may be combined for this purpose). Neomycin may absorb penicillin. Concurrent use with metho-
- trexate may increase and risk of serious toxicity.

**Route/Dosage**
- PO (Adults and Children ≥ 12 yr): Most infections—125– 500 mg q 6– 8 hr.
- Rheumatic fever prevention—125– 250 mg q 12 hr.
- PO (Children ≥ 2 yr): Lyme disease—50 mg/kg/day in 4 divided doses (unla-
- beled); prevention of Streptococcus pneumoniae sepsis in children with sickle cell
disease—125 mg twice daily.

**NURSING IMPLICATIONS**
- Assessment: - Focus for infections (vital signs; appearance of wound, sputum, urine, and stool, WBC) at beginning of and during therapy.

<table>
<thead>
<tr>
<th>TIME/ACTION PROFILE (blood levels)</th>
<th>ROUTE</th>
<th>ONSET</th>
<th>PEAK</th>
<th>DURATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PO</td>
<td>rapid</td>
<td>0.5–1 hr</td>
<td>4–6 hr</td>
</tr>
</tbody>
</table>

**TIME/ACTION PROFILE (blood levels)**
- PO rapid 0.5–1 hr 4–6 hr
**Penicillins**

2. Obtain a history to determine previous use of and reactions to penicillins, cephalosporins, or other beta-lactam antibiotics. Persons with a negative history of penicillin sensitivity may still have an allergic response.

3. Obtain specimens for culture and sensitivity before initiating therapy. First dose may be given before receiving results.

4. Observe patient for signs and symptoms of anaphylaxis (rash, pruritus, laryngeal edema, wheezing). Discontinue drug and notify physician or other health care professional immediately if these symptoms occur. Keep epinephrine, an antihistamine, and resuscitation equipment close by in case of an anaphylactic reaction.

5. Lab Test Considerations: May cause positive direct Coombs’ test results. May cause AST, ALT, LDH, and serum alkaline phosphatase concentrations. May cause leukopenia and neutropenia, especially with prolonged therapy or hepatic impairment.

Potential Nursing Diagnoses

- Risk for infection (Infections) (Side Effects)
- Noncompliance (Patient/Family Teaching)

Implementation

- PO: Administer around the clock. Penicillin V may be administered without regard for meals.
- Use calibrated measuring device for liquid preparations. Solution is stable for 14 days if refrigerated.

Patient/Family Teaching

- Instruct patient to take medication around the clock and to finish drug completely as directed, even if feeling better. Advise patient that sharing the medication may be dangerous.
- Advise patient to report signs of superinfection (black, furry overgrowth on tongue; foul breath or discharge; brown colored stools; pruritus) and allergy.
- Instruct patient to notify health care professional if fever and diarrhea develop, especially if stools contain blood, gas, or mucus. Advise patient not to treat diarrhea without consulting health care professional.
- Instruct patient to notify health care professional if symptoms do not improve.
- Advise patient taking oral contraceptives to use an additional nonhormonal method of contraception during therapy with penicillin and until next menstrual period.

- Patient with an allergy to penicillin should be instructed to always carry an identification card with this information.

Evaluation/Desired Outcomes

- Resolution of signs and symptoms of infection. Length of time for complete resolution depends on the organism and site of infection.

Why was this drug prescribed for your patient?