immature liver is deficient in conjugation mechanisms and there is a decrease in the renal tubular secretion of the chloramphenicol glucuronid. This results in abnormally progressive accumulations of chloramphenicol and some of its degradation metabolites. The toxic effect in the newborn infant has been directly related to the high level of active chloramphenicol that accumulates in the blood stream after repeated doses. Thus, the "gray syndrome" in newborn infants may be prevented by reducing the size of the dose to no more than 25 mg/kg per day in premature infants or infants under 2 weeks of age.[52-54]

Other toxic reactions resulting from chloramphenicol therapy include nausea and, occasionally, diarrhea. The gastrointestinal symptoms are mild and the drug is usually well tolerated. Secondary infections, due to the presence of yeasts, may also occur.

Allergic reactions are rare. Angioneurotic edema, vesicular and maculopapular eruptions, and fever have been observed. In addition, acute necrosis of the liver has occurred after chloramphenicol therapy and peripheral neuritis associated with optic neuritis has been reported during the prolonged administration of relatively large doses.[55]

PREPARATIONS AND DOSAGE

Chloramphenicol can be given orally, intramuscularly, subcutaneously, intravenously, and rectally. It is available in 50, 100, and 250 mg capsules for oral administration. This preparation contains crystalline chloramphenicol; effective blood levels are usually obtained within one-half hour after ingestion. However, in patients who are severely ill, particularly in those with signs of peripheral circulatory collapse, absorption is often delayed and intravenous therapy should be utilized.

A liquid preparation of chloramphenicol, available as the palmitate ester, is designed for use in young children.[30, 56] This preparation is palatable in contrast to the extremely bitter taste of the crystalline form. Therapeutic levels are not attained until 2 or 3 hours after administration because the ester must be hydrolyzed before absorption occurs. Since as much as 50% of the dose is lost in the stool, the amount given must be higher than when the drug is administered in the crystalline form.[53] Each 4 cc contains 125 mg of chloramphenicol and the recommended dose is 100 to 200 mg/kg of body weight per day, given at 6- or 8-hour intervals.

A preparation containing chloramphenicol and dihydrostreptomycin is marketed. There are no specific indications for this preparation.

Two preparations are available for intramuscular administration, a microcrystalline powder and a suspension. The latter is prepared by adding physiologic saline or sterile water. Effective blood levels may not be obtained for 2 to 3 hours after intramuscular administration. Peak blood levels will be lower but will last longer than with the same dose of an oral preparation.

Chloramphenicol sodium succinate is a highly water-soluble ester and hence is more readily absorbed than the microcrystalline form. It is available in sterile vials containing crystalline powder equivalent to 1 gm of chloramphenicol which may be dissolved in sterile water, normal saline, or glucose solutions. This preparation is suitable for intramuscular, subcutaneous, or intravenous use. Therapeutic blood levels are obtained within one-half hour after intramuscular administration. Peak blood levels occur in 1½ to 2 hours and therapeutic levels persist for 6 to 8 hours. This is the preferable preparation for parenteral use.

Several preparations are available for topical administration, including a cream, an ointment, drops for ophthalmic use, and drops for otic use. However, there is little indication for the use of these formulations.

The dose of chloramphenicol in adults is 2 to 3 gm daily.

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GENERIC AND TRADE NAMES OF DRUGS

Chloramphenicol—*Chloromycetin.*
Chlortetracycline hydrochloride—*Aureomycin Hydrochloride.*
Oxytetracycline—*Terramycin.*
Demethylchlortetracycline hydrochloride—*Declomycin Hydrochloride.*
Tetracycline—*Achromycin, Panmycin, Polycycline, Tetracyn.*
Kanamycin sulfate—*Kantrex.*
Nystatin—*Mycostatin.*
Amphotericin B—*Fungizone.*
Erythromycin—*Erythromycin, Ilotycin.*
Dihydrostreptomycin sulfate—*Dihydrostreptomycin Sulfate.*