Of the 5 infants exhibiting toxicity on intramuscular medication, 4 were given microcrystalline chloramphenicol. This preparation has the disadvantage of slow absorption, resulting in low initial blood levels and greater tendency to accumulation with repeated dosage. In tratment of the premature infant, the more rapidly absorbed chloramphenicol sodium succinate would be preferred.

SUMMARY

Recent investigations have documented chloramphenicol toxicity in premature infants given doses over 100 mg/kg/day. Toxicity was shown to have a correlation with elevated blood levels of chloramphenicol. In order to establish whether lower doses would result in therapeutic levels without toxicity, we determined blood nitro compounds in premature infants after intramuscular and intravenous administration of 20 to 50 mg/kg/day.

Initial levels were lower and toxic reactions occurred more commonly with microcrystalline chloramphenicol than with the sodium succinate ester. The latter form should be preferred for treatment of the premature infant. A tendency to accumulate chloramphenicol in the blood was observed only in the young infants, regardless of birth weight.

Two infants under 4 days of age accumulated blood levels over 50μg/cc and developed toxic symptoms after daily doses of 25 mg/kg intramuscularly. Two infants died with blood levels below50μg/cc without clinical explanation of their death. Two of the infants with toxic symptoms had clinical or laboratory evidence of reduced renal function. Such infants should be treated cautiously with a smaller dose.

Premature infants 7 days of age or less maintained blood levels in the therapeutic range when given 25 mg/kg of chloramphenicol sodium succinate intramuscularly once daily. Premature infants over 7 days of age failed to maintain thereapeutic levels on this dose, but developed adequate levels without toxic symptoms when given 50 mg/kg intramuscularly once daily of the same drug. The same doses of chloramphenicol sodium succinate in each age group, given intravenously, gave adequate levels for 24 hours. This form of the drug must be infused slowly over a period of 3 to 5 hours to prevent accumulation of chloramphenicol to toxic levels.

All premature infants, especially those in the first week of life or with evidence of reduced renal function, should be carefully watched for the development of abdominal distention, lethargy, respiratory distress, and gray cyanosis. The drug should be discontinued promptly if these symptoms appear.

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