ASSIGNMENT 1

Bioavailability

The intake of high doses of beta carotene in food substances has been associated in many observational studies with a decreased incidence of cancer. A clinical trial was planned comparing the incidence of cancer in a group getting beta carotene in capsule form compared with a group getting beta-carotene placebo capsules. One issue in planning such a study is which preparation to use for the beta-carotene capsules. Four preparations were considered: (1) Solatene (30-mg capsules), (2) Roche (60-mg capsules), (3) BASF (30-mg capsules), and (4) BASF (60-mg capsules). To test the efficacy of the four agents in raising plasma-carotene levels, a small bioavailability study was conducted. After two consecutive-day fasting blood samples, 23 volunteers were randomized to one of the four preparations, taking 1 pill every other day for 12 weeks: (1) Solatene 30 mg, (2) Roche 60 mg, (3) BASF 30 mg, and (4) BASF 60 mg. The primary endpoint was the level of plasma carotene attained after a moderately prolonged steady ingestion. For this purpose, blood samples were drawn at 6, 8, 10, and 12 weeks, with results given in Data Set BETACAR.DAT, on the data disk. The format of the data is given in Table 9.21.

The data have the following form:

Variable	Column	Code
Preparation	1	1=SOL/2=ROCHE/3=BASF-30/4=BASF-60
Subject #	3-4	
1st Baseline Level	6-8	
2nd Baseline Level	10-12	
Week 6 Level	14-16	
Week 8 Level	18-20	
Week 10 Level	22-24	
Week 12 Level	26-28	

Construct a model in BUGS to estimate the effect of each preparation on the level of plasma carotene.