Litter

T. St. Story

100 Ame

a drug

Gfrom

the drug

se, 5000

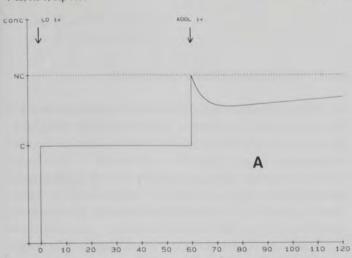
012000

ST (28

We SID-

100 18





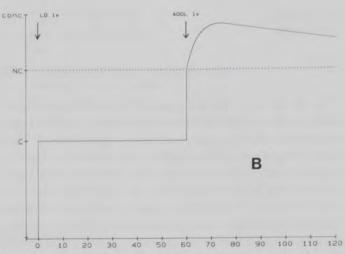


FIG. 1. A computer simulation of the predicted plasma concentration (CONC) using equation 2 of Alvis *et al.*¹ The proposed equations are adequate for the first desired concentration (C), but when a higher predicted concentration is desired (NC), an under prediction (A) or over prediction (B) from the desired level occurs, depending on the definition of "t" in equation 2.

$$\begin{split} u_{1}(t) &= V_{c} \cdot C \cdot M_{p} \cdot (k_{10} + k_{12} \cdot e^{-k_{21} \cdot t} + k_{13} \cdot e^{-k_{31} \cdot t}) \\ &+ V_{c} \cdot (NC - C) \cdot M_{p} \times \\ &(k_{10} + k_{12} \cdot e^{-k_{21} \cdot (t - t_{1})} + k_{13} \cdot e^{-k_{31} \cdot (t - t_{1})}) \end{split} \tag{3}$$

where the origin of t is the time at which the *initial* loading dose was administered, and t₁ is the time at which the *first additional* loading dose is given. Similarly, although somewhat more complex, the solution can be derived for the infusion rate after the nth additional bolus, using again the superposition principle.

PIERRE MAITRE, M.D.
SAM VOZEH, M.D.
Department of Anesthesia and
Division of Clinical Pharmacology

Anesthesiology 65:345, 1986

In Reply:—We appreciate the insightful and thorough analysis offered by Drs. Maitre, Vozeh, and Stanski; we are continually modifying and upgrading our CACI software, and we will actively consider the relevance to our current system design of the suggestions provided. We find CACI to be a useful tool for both clinical research and patient management, and we are pleased to hear of others who share our interest in pharmacokinetically driven drug infusion.

Department of Internal Medicine University of Basel / Kantonsspital CH-4031 Basel, Switzerland

DONALD STANSKI, M.D.
Associate Professor of Anesthesia
Stanford University School of Medicine
Veterans Administration Medical Center
Palo Alto, California 94305

REFERENCES

 Alvis JM, Reves JG, Govier AV, Menkhaus PG, Henling CE, Spain JA, Bradley E: Computer-assisted continuous infusion of fentanyl during cardiac anesthesia: Comparison with a manual method. ANESTHESIOLOGY 63:41–49, 1985

(Accepted for publication May 29, 1986.)

J. MICHAEL ALVIS, M.S.
JAMES R. JACOBS, B.E.S.
J. G. REVES, M.D.
Department of Anesthesiology
Duke University Medical Center
Durham, North Carolina 27710

(Accepted for publication May 29, 1986.)