NCA Programming

Theme 6

2022-12-20

## Load Package

## Data import

path <- here::here()  
adsl <- import(paste(path , "adam", "adsl.sas7bdat" , sep = "/"))  
adpc <- import(paste(path , "adam", "adpc.sas7bdat" , sep = "/"))  
adpp <- import(paste(path , "adam", "adpp.sas7bdat" , sep = "/"))

## NCA

adpc => NCA analysis

adpc2 <- adpc %>%  
 filter( PARAMCD=="THEOPHS"   
 & TRTA %in% c("Theophylline\_C01","Theophylline\_C02") ) %>%  
 mutate(ARELTM2 = if\_else(ARELTM < 0, 0 ,ARELTM))  
  
  
nca\_c01 <- adpc2 %>%   
 filter(TRTA=="Theophylline\_C01") %>%  
 tblNCA( .  
 , key = "SUBJID"  
 , colTime = "ARELTM2"  
 , colConc = "AVAL"  
 , dose = 320  
 , adm = "Extravascular"  
 , dur = 0  
 , doseUnit = "mg"  
 , timeUnit = "h"  
 , concUnit = "mg/L"  
 , down = "Linear")  
  
nca\_c02 <- adpc2 %>%   
 filter(TRTA=="Theophylline\_C02") %>%  
 tblNCA( .  
 , key = "SUBJID"  
 , colTime = "ARELTM2"  
 , colConc = "AVAL"  
 , dose = 640  
 , adm = "Extravascular"  
 , dur = 0  
 , doseUnit = "mg"  
 , timeUnit = "h"  
 , concUnit = "mg/L"  
 , down = "Linear")  
  
nca <- rbind(nca\_c01, nca\_c02)

## PK concentration plot

#### 個別推移図

##### 320 mg

p1 <- adpc2 %>%   
 filter(TRTA=="Theophylline\_C01") %>%  
 ggplot(.,aes(x=ARELTM2,y=AVAL,group=SUBJID))+  
 theme\_set(theme\_classic()) +  
 geom\_line(aes(linetype = SUBJID))+  
 ggtitle("Linier view") +  
 xlab("Time (h)")+  
 ylab("Concentration (mg/L)")+  
 theme\_bw()+   
 theme(legend.position = "none",plot.title = element\_text(hjust = 0.5))   
  
p2<- adpc2 %>%   
 filter(TRTA=="Theophylline\_C01") %>%  
 ggplot(.,aes(x=ARELTM2,y=AVAL,group=SUBJID))+   
 theme\_set(theme\_classic()) +  
 geom\_line(aes(linetype = SUBJID))+  
 geom\_abline(intercept = log10(0.5), slope = 0,linetype = 2) +  
 annotate("text", x=22, y=0.4, label="BLQ")+  
 ggtitle("Semilogarithmic view") +  
 xlab("Time (h)")+  
 scale\_y\_continuous(trans='log10')+  
 ylab("Concentration (mg/L)")+  
 theme\_bw()+   
 theme(legend.position = "none",plot.title = element\_text(hjust = 0.5))  
  
p1 + p2

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##### 640 mg

p3 <- adpc2 %>%   
 filter(TRTA=="Theophylline\_C02") %>%  
 ggplot(.,aes(x=ARELTM2,y=AVAL,group=SUBJID))+  
 theme\_set(theme\_classic()) +  
 geom\_line(aes(linetype = SUBJID))+  
 ggtitle("Linier view") +  
 xlab("Time (h)")+  
 ylab("Concentration (mg/L)")+  
 theme\_bw()+   
 theme(legend.position = "none",plot.title = element\_text(hjust = 0.5))   
  
p4 <- adpc2 %>%   
 filter(TRTA=="Theophylline\_C02") %>%  
 ggplot(.,aes(x=ARELTM2,y=AVAL,group=SUBJID))+   
 theme\_set(theme\_classic()) +  
 geom\_line(aes(linetype = SUBJID))+  
 geom\_abline(intercept = log10(0.5), slope = 0,linetype = 2) +  
 annotate("text", x=22, y=0.4, label="BLQ")+  
 ggtitle("Semilogarithmic view") +  
 xlab("Time (h)")+  
 scale\_y\_continuous(trans='log10')+  
 ylab("Concentration (mg/L)")+  
 theme\_bw()+   
 theme(legend.position = "none",plot.title = element\_text(hjust = 0.5))   
  
p3 + p4

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