표본크기

2023-08-29

파일 불러오기

```
setwd('C:\\Users\\phl02\\Desktop\\P\\bio_sas')
size<- read.csv("data\\ncm.csv")
size
```

```
##        study k event.e   n1 event.c   n2
## 1 study1 (1) 1      51  650      68  578
## 2 study2 (3) 3      85  901      56  403
## 3 study3 (2) 2      43  789      53  737
## 4 study4 (4) 4     101  834     127  832
## 5 study5 (5) 5      32  317      37  307
## 6 study6 (6) 6    1570 8347    1720 8600
## 7 study7 (7) 7     247 2227     235 2266
```

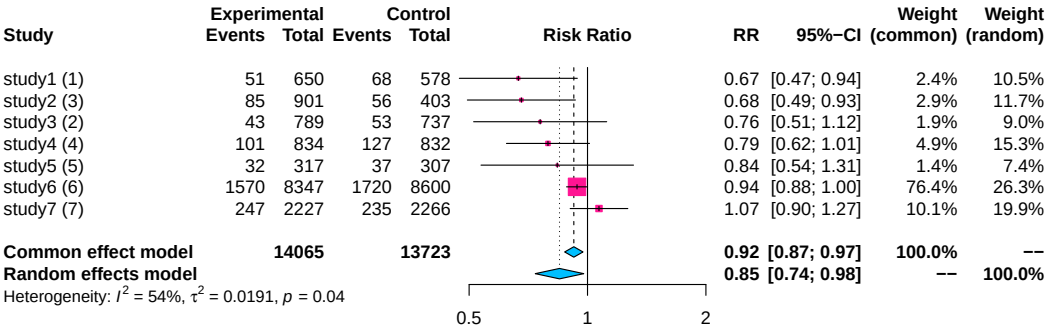
분석 진행

```
library(meta)
meta_size <- metabin(event.e,n1,event.c,n2,data=size,studlab = study,
                     sm='RR',method='Inverse')
meta_size
```

```
## Number of studies: k = 7
## Number of observations: o = 27788
## Number of events: e = 4425
##
##                          RR           95%-CI     z p-value
## Common effect model  0.9230 [0.8747; 0.9739] -2.93  0.0034
## Random effects model 0.8488 [0.7363; 0.9785] -2.26  0.0238
##
## Quantifying heterogeneity:
##  tau^2 = 0.0191 [0.0000; 0.1253]; tau = 0.1381 [0.0000; 0.3539]
##  I^2 = 53.7% [0.0%; 80.2%]; H = 1.47 [1.00; 2.25]
##
## Test of heterogeneity:
##      Q d.f. p-value
##  12.96    6  0.0436
##
## Details on meta-analytical method:
## - Inverse variance method
## - Restricted maximum-likelihood estimator for tau^2
## - Q-Profile method for confidence interval of tau^2 and tau
```

그래프

```
forest(meta_size,
       col.diamond = 'deepskyblue1',col.square = 'deeppink1')
```



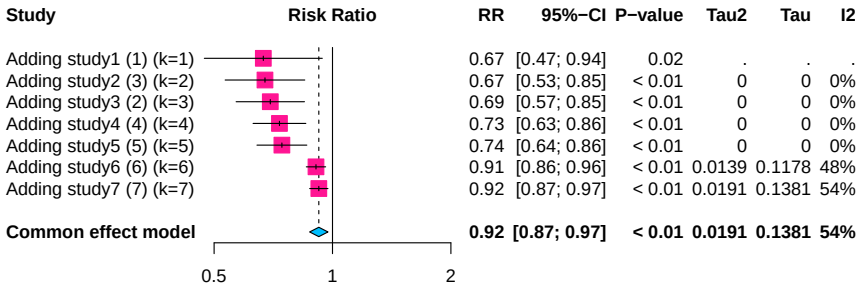
누적

```
meta_size2 <-metacum(meta_size,sortvar=study)
meta_size2
```

```
## Cumulative meta-analysis (common effect model)
##
##                              RR           95%-CI  p-value   tau^2     tau
## Adding study1 (1) (k=1)   0.6669 [0.4722; 0.9420]   0.0215
## Adding study2 (3) (k=2)   0.6734 [0.5333; 0.8503]   0.0009  0.0000  0.0000
## Adding study3 (2) (k=3)   0.6947 [0.5687; 0.8486]   0.0004  0.0000  0.0000
## Adding study4 (4) (k=4)   0.7330 [0.6281; 0.8555] < 0.0001  0.0000  0.0000
## Adding study5 (5) (k=5)   0.7435 [0.6426; 0.8604] < 0.0001  0.0000  0.0000
## Adding study6 (6) (k=6)   0.9078 [0.8578; 0.9607]   0.0008  0.0139  0.1178
## Adding study7 (7) (k=7)   0.9230 [0.8747; 0.9739]   0.0034  0.0191  0.1381
##
## Pooled estimate           0.9230 [0.8747; 0.9739]   0.0034  0.0191  0.1381
##                              I^2
## Adding study1 (1) (k=1)
## Adding study2 (3) (k=2)     0.0%
## Adding study3 (2) (k=3)     0.0%
## Adding study4 (4) (k=4)     0.0%
## Adding study5 (5) (k=5)     0.0%
## Adding study6 (6) (k=6)    48.5%
## Adding study7 (7) (k=7)    53.7%
##
## Pooled estimate            53.7%
##
## Details on meta-analytical method:
## - Inverse variance method
## - Restricted maximum-likelihood estimator for tau^2
```

그래프

```
forest(meta_size2,
       col.diamond = 'deepskyblue1',col.square = 'deeppink1')
```



결과 정리

```
library(kableExtra)
library(stringr)
result <- matrix(0,7,6)
colnames(result) <- c('k','RR','95% CI_low',
                      '95% CI_up','I^2(%)','P')
result[,1] <- as.matrix(unique(unlist(str_extract_all(meta_size2$studlab,"[0-9]{1,}"))))
result[,2] <- c(0.67,0.67,0.69,0.73,0.74,0.91,0.92)
result[,3] <- c(0.47,0.53,0.57,0.63,0.64,0.86,0.87)
result[,4] <- c(0.94,0.85,0.85,0.85,0.86,0.96,0.97)
result[,5] <- round(na.omit(meta_size2$I2)*100,2)
result[,6] <- round(na.omit(meta_size2$pval),3)[1:7]

for(i in 1:nrow(result)){
  if (result[i,6] < 0.001) result[i,6]='<.001'
}

kable(result)
```

k	RR	95% CI_low	95% CI_up	I^2(%)	P
1	0.67	0.47	0.94	0	0.022
2	0.67	0.53	0.85	0	0.001
3	0.69	0.57	0.85	0	<.001
4	0.73	0.63	0.85	0	<.001
5	0.74	0.64	0.86	48.5	<.001
6	0.91	0.86	0.96	53.72	0.001
7	0.92	0.87	0.97	53.72	0.003