

## ABSTRAK

**Pengaruh Pemberian Minyak Ikan Kembung (*Rastrelliger kanagurta*)  
Selama Kebuntingan terhadap Ekspresi Caspase 3 dan  
Jumlah Sel Glia *Rattus norvegicus* Baru Lahir**

Nur Cholila

**Tujuan** : membandingkan ekspresi caspase 3 dan jumlah sel glia (astrosit, oligodendrosit dan microglia) di *cerebrum* dan *cerebellum Rattus norvegicus* baru lahir pada kelompok minyak ikan kembung, suplemen omega 3 dan kelompok kontrol.

**Metode** : penelitian *experimental* laboratorium ini menggunakan desain *post test only control group* dengan variabel ekspresi caspase 3 dan jumlah sel glia (astrosit, oligodendrosit dan microglia), minyak ikan kembung, suplemen omega 3. Sebanyak 30 *Rattus norvegicus* bunting dirandomisasi menjadi 3 kelompok dan diberikan perlakuan selama 1-17 hari kebuntingan dan dikorbankan pada hari ke 18. Setiap induk diambil 3 anak dan dibuat preparat dari jaringan otak. Pewarnaan sediaan dilakukan dengan imunohistokimia untuk menilai ekspresi caspase 3 dan *Hematoksin-Eosin* untuk menilai jumlah sel glia.

**Hasil** : ekspresi caspase 3 di *cerebrum* dan *cerebellum* paling rendah pada kelompok minyak ikan kembung  $2,50 \pm 0,63$  dan  $2,50 \pm 1,00$ . Jumlah sel glia di *cerebrum* dan *cerebellum* paling tinggi pada kelompok minyak ikan kembung (astrosit  $174,46 \pm 33,78$  dan  $156,28 \pm 34,98$ ; oligodendrosit  $21,08 \pm 6,94$  dan  $22,26 \pm 4,30$ ; microglia  $11,30 \pm 2,09$  dan  $11,06 \pm 2,38$ ). Hasil uji statistik menunjukkan perbedaan signifikan ekspresi caspase 3 dan jumlah sel glia di *cerebrum* dan *cerebellum* antar kelompok dengan nilai  $p < 0,05$ .

**Kesimpulan** : ekspresi caspase 3 di *cerebrum* dan *cerebellum Rattus norvegicus* baru lahir secara berturut-turut paling rendah pada kelompok yang diberi minyak ikan kembung, kelompok suplemen omega 3, kelompok kontrol. Sedangkan jumlah sel glia (astrosit, oligodendrosit dan microglia) di *cerebrum* dan *cerebellum Rattus norvegicus* baru lahir secara berturut-turut paling tinggi pada kelompok yang diberi minyak ikan kembung, kelompok suplemen omega 3, kelompok kontrol

**Kata kunci** : *Rattus norvegicus* bunting, minyak ikan kembung, *cerebrum*, *cerebellum*, caspase 3, sel glia.

## ABSTRACT

### **The Effect of Giving Mackerel Oil (*Rastrelliger kanagurta*) During Pregnancy Towards the Expression of Caspase 3 and the Number of Glia Cells Cerebrum and Cerebellum of the Newly born *Rattus Norvegicus***

Nur Cholila

**Purpose :** The purpose of the research is to compare the expression of caspase 3 and the number of glia cells (astrocyte, oligodendrocyte and microglia cells) in cerebrum and cerebellum of the newly born *Rattus norvegicus* among the mackerel fish oil group, the omega 3 supplementary group and the controlling group.

**Methods :** This laboratory experimental research is using the design of post test only control group with the variables of caspase 3 expression and the number of glia cells (astrocyte, oligodendrocyte and microglia cells), the mackerel fish oil, the omega 3 supplementary. As many as 30 pregnant *Rattus norvegicus* are randomized into 3 groups and given certain treatment during the 1<sup>st</sup>-17<sup>th</sup> day of their pregnancy, and then slaughtered on the 18<sup>th</sup> day. From each mother, three babies were taken, and then slaughtered for the brain to be taken. And the brain tissues were used as the preparation. The supply coloring was carried out by using immunohistochemical for evaluating caspase 3 expression whereas Hematoksilin-Eosin is for evaluating the number of glia cells.

**Results :** The lowest caspase 3 expression in cerebrum and cerebellum was found in the group of mackerel oil, that is  $2,50 \pm 0,63$  and  $2,50 \pm 1,00$ . The highest number of glia cells in cerebrum and cerebellum was found in in the group of mackerel oil (astrocytes  $174.46 \pm 33.78$  and  $156.28 \pm 34.98$ ; oligodendrocytes  $21.08 \pm 6.94$  and  $22.26 \pm 4.30$ ; microglia  $11.30 \pm 2.09$  and  $11.06 \pm 2.38$ ). . The result of statistical test demonstrates the significant difference between the caspase 3 expression and the number of glia cells in cerebrum and cerebellum among the groups with the value of  $p < 0,05$ .

**Conclusion :** The caspase 3 expression in cerebrum and cerebellum of the newly born *Rattus norvegicus* consecutively the lowest in the group given mackerel fish oil, omega 3 supplementary group, controlling group. Whereas the number of glia cells (astrocyte, oligodendrocyte and microglia cells) in cerebrum and cerebellum of the newly *Rattus norvegicus* consecutively the highest in the mackerel fish oil group, omega 3 supplementary group, controlling group.

**Keywords :** pregnant *Rattus norvegicus*, mackerel oil, *cerebrum*, *cerebellum*, caspase 3, glia cells.