

SUMMARY

An experimental toxoplasmosis infection on mice (*Mus musculus*) by using *Toxoplasma gondii* Surabaya isolate had been conducted since December 1986 until March 1989.

The factorial experimental designed was used in this research. There were four groups of mice which were non pregnant, first week, second week and third week pregnant and which got treatment. There were also control group for each group of mice which didn't get any treatment. Each group of mice contained of 24 mice which were 2 months old and were not pregnant or pregnant for the first time.

One hundred of ookista of *I. gondii* were used as an infective material on each mice and the parameters were antibody titer, blood pictures, parasitaemia and histopathological changes.

Sabin and Feldman test and indirect haem-agglutination technique were used in serological test. The blood picture contained of packed cell volume, red blood cell count, haemoglobin percentage, white blood cell count, neutrophil, eosinophil, lymphocyte and monocyte percentage. Parasitaemia parameter were there were or were not parasitaemia by searching cysts in the brain or serological testing. Histopathological

changes of the liver, the spleen, the brain and the uterus were stained by haematoxyline-eosin and 7 microns in thickness.

Analysis of varians were used and tested by F test which will be continued when there were significantly difference by Duncan test. Chi-square test was used also in the parasitaemia test and Kruskall-Wallis test and Wilcoxon test were used in qualitative data testing.

Regretion and correlation analysis were used in revealing the correlation between serological test and post inoculation time.

The result of this experiment proved that the Toxoplasma antibody titer was present on the sixth day post inoculation. The titer was tested by both techniques such as Sabin and Feldman test and indirect haemagglutination technique. The pregnancy, the post inoculation time and the interaction between them influenced the antibody titer highly significant ($p < 0.01$). Duncan multiple range test revealed that the antibody titers increased coincident with the pregnancy ages and the post inoculation time generally.

The antibody titers which were tested by the Sabin titers tested by the haemagglutination technique highly

signi-ficant ($p < 0.01$). The antibody titers had the square regresion with the post inoculation times and the pregnancy stadia in general which had the strong correlation between them ($r = 0.99$)

Parasitaemia can be proved on the sixth day post inoculation time in all of these groups. The same results continued on the nineth day post inoculation time in all groups of mice but there were not parasi-taemia on the twelefth day post inoculation time.

Its proved that the parasitaemia occured between the sixth and the ninth post inoculation times and also were not influenced by the pregnancy stadia.

The packed cell volumes of these groups of mice were influenced highly significant ($p < 0.01$) by the post inoculation time . The longer of the post inoculation times, the lower of the pcv in mice.

On the other hand, the pregnancy were also influ-enced significantly ($p < 0.05$) on the pcv. The highest pcv was on the non-pregnancy groups which were followed by the third, the second and the first week pregnancy respectively.

The post inoculation times and the preg- nancy influenced the haemoglobin of mice highly significant ($p < 0.01$). The highest haemoglobin were on the non

pregnancy group followed by the third week pregnancy, the second week pregnancy and finally the first week pregnancy group. The last group was the lowest haemoglobin percentage which was difference from the others significantly.

The third day was the highest haemoglobin followed by the sixth, the ninth and the twelfth day group of mice which were significantly difference ($p < 0.05$) between each other.

The post inoculation times and the pregnancy affected highly significant ($p < 0.01$) on the number of the red blood cells were the same as on the haemoglobin percentage. It is easy to understand because the haemoglobin was one of the red blood cell components.

The interaction between the pregnancy and the post inoculation times influenced highly significant ($p < 0.01$) on the number of the white blood cells. The number of the white blood cells increased coincidentally with the inoculation times interacted with the pregnancy. The third week pregnancy group of mice was the highest number of the white blood cell and followed by the second week, the non pregnancy and the first week group pregnancy of mice. It was almost the same in the four days of observation. As we know that there are always antibody reaction in order to eliminate the

antigen and the number of the white blood cells will increase concominantly with the present of the antigen.

The percentages of neutrophil were affected by the interaction between the pregnancy and the post inoculation times highly significant ($p < 0.01$). The neutrophils were decreased in general depending on the interaction of the post inoculation times and the pregnancy. Its were decreased from the third day to the twelfth day observation. The decrease of the neutrophil didn't cause the decrease of the white blood cell because of the number of neutrophil in the normal mice was 11 - 31 % compared with the number of limphocytes in normal mice was 54 - 86 % and supported by the number of monocytes which was 1 - 14 % and eosinophil 1 - 5% in normal mice. Three of the last white blood cells increased in this experiment in all groups of mice. That could be the reason why the number of the white blood cell increased although the number of the neutrophil decreased.

The percentages of eosinophil were influenced by the pregnancy and the post inoculation time significantly ($p < 0.05$). The eosinophil increased gradually according to the post inoculation times and the lowest one on the third day post inoculation time which increased on the sixth, ninth and twelfth day post inocu-

438

lation times. All of them were different significantly each others. The pregnancy affected the percentage of eosinophil significantly ($P < 0.05$). The percentage of eosinophil in the third pregnancy was the highest and different significantly with the others which were not different significantly between them each others.

The percentages of lymphocytes was affected significantly ($p < 0.05$) by the interaction of the pregnancy and the post inoculation time. In general the percentage of lymphocytes increased coincidence with the post inoculation times. The third week pregnancy group was the highest number of lymphocytes which followed by the second week pregnant, the non pregnant and the first week pregnant respectively.

The picture of the monocytes was almost the same with the changes of the lymphocytes where its were affected highly significant by the interaction of the pregnancy and the post inoculation times.

The third week pregnancy group was the highest number of monocytes and follow by the second week pregnancy, the non pregnant and the first week pregnancy.

The histopathology changes were observed on the liver, spleen, brain and uterus. The his- topatological

liver were the congesty, fatty degeneration and necrosis. On the spleen there were bleeding, hiperplasy and necrosis.

There was only congesty which was found on the brain observation. The uterus got the congesty, bleeding and necrosis changes on the histopathological pictures.

All of the groups of treatment mice got the histopathological changes on all of the organs which were observed after inoculation 100 oocytes of *I. gondii* in every post inoculation time.

The uterus was congesty, bleeding and necrosis which meant there could be possible caused abortus, still birth, infection with *I. gondii* on the fetus.

The isolation of *I. gondii* from the diphragm of swines had been conducted at the slaughterhouse in Surabaya in November and December 1986. The cysts of *I. gondii* can be isolated in 3 (10%) of 30 diaphragms of swines. The diameter of cysts in the mice's brain were $38.9 \pm 10.1 \text{ um}$. Oocysts were ovoid form and ($13.6 \pm 0.7 \text{ um}$) in length and ($11.8 \pm 0.7 \text{ um}$) in width as the product of the cat's inoculation. The sporulation times were 5 - 8 days. The cats are present in our enviroment freely which could be the most important source of toxoplasmosis dissemination.

The serological survey had been conducted on the goats which were slaughtered at the slaughterhouses in Surabaya and Malang by indirect haemagglutination technique (21 : 64) in Nopember and December 1990. The result revealed that 53 (52.4 %) of 125 goats in the Surabaya's slaughterhouse and 14 (40 %) of 35 goats in Malang's slaughterhouse were positive toxoplasmosis serologically. Its meant that we have to pay attention on the cooking of the meats which have to be cooked completely.