ROLE OF NATURAL KILLER CELLS OF CHICKENS AGAINST TRANSPLANTABLE MAREK'S DISEASE LYMPHOBLASTOID CHLL LINE CELLS

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Natural killer (NK) cells, which are cytotoxic to tumor cells *in vivo*, exist in the spleen of normal chickens as well as in that of mammals.

In the present study, we investigated the role of NK cells of line LMG chickens against transplantable Marek's disease (MD) lymphoblastoid cell line cells *in vivo* and *in vitro*.

The results were summarized as follows:

1. Chickens less than 1-week-old were sensitive to the growth of a transplantable MD lymphoblastoid cell line, MSB1-clo. 18, and produced progressive tumors upon inoculation. However, 2-week-old or older chickens rejected the tumor cells completely.
2. The level of NK activity of spleen cells was the highest in 8～12-week-old chickens, after with it decreased. The level was significantly low in less than 1-week-old chickens.
3. NK suppressor cells were present in the spleens of 1-week-old chickens. The cells were sensitive by treatment with anti-thymocyte rabbit serum (ATS) or a monoclonal antibody (2E2) specific to T cell antigen on MDCC-MSB1 cells in the presence of guinea-pig complement (C′).
4. The NK activity was significantly reduced in chickens treated with chick fetal antigen (CFA) purified from extract of MSB1-clo. 18 cells or chick alfa-fetoprotein (AFP) from chick embryo serum. Further, NK activity was also reduced by treatment of spleen cells with CFA or AFP *in vitro*. The suppression depended on the amount of CFA or AFP used. The suppression of NK activity by AFP was diminished by pretreatment with ATS+C′, whereas the suppression by CFA had no influence on the treatment. Moreover, in CFA or AFP treated chickens, the production of antibodies against sheep red blood cells (SRBC) was not suppressed.
5. Two-week-old chickens injected intraperitoneally with spleen cells from tumor-carrying birds could not reject the transplantable MSB1-clo. 18 cells when inoculated subcutaneously into the wingwebs, and they developed progressive tumors in the inoculated site. Compared with the chickens injected with spleen cells from chickens with regressive tumor, the chickens injected with the cells from progressive tumor developed larger tumors at an earlier time.