Context: Thyroid antibody-dependent cytotoxicity has been reported in autoimmune thyroid disease (AITD). Indeed, the role of thyroperoxidase autoantibodies (TPO-Abs) in complement-mediated damage by binding to TPO expressed on the surface of human thyroid cells was demonstrated, whereas their activity in antibody-dependent cell cytotoxicity (ADCC) is not well established.

Objective: The aim of the study was to define the partners involved in antibody and complement-dependent cytotoxicity (CDC) in AITD and characterize which effector cells are involved in cytotoxicity mediated by TPO-Abs using a chromium release assay.

Results: The relative capability of TPO-Abs to mediate ADCC using human thyroid cells in culture varied from 11% to 74.5%, depending on the effectors cells used. The human monocyte cell line HL60 gives a better lysis than the THP-1 cell line as effector cells. It seems obvious that the mechanism of ADCC is mediated quite exclusively by Fc\γRI. Indeed, the two effector cell lines differ by the level of the Fc\γRI expression (91.83% for HL-60 cells and 22.55% for the THP-1). In addition to ADCC, TPO-Ab mediates the destruction of thyrocytes by CDC (56%).

Conclusions: The results demonstrate that TPO-Abs can damage cultured thyroid cells by ADCC & CDC mechanisms. Monocytes (via their Fc\γRI) are important effector cells in ADCC mediated by TPO-Abs and may contribute with T cells to destruction of the thyroid gland in AITD.
As an example in the 1960s, Paul Bastenie and coworkers in Hospital Saint Pierre (Brussels) showed a direct correlation between the titers of Th-Abs determined in patients (hospitalised for various medical conditions) and characteristic anatomical lesions of the thyroid gland (demonstrating chronic autoimmune thyroiditis) in patients who had died from their disease and were autopsied.

With the later development of modern techniques to measure Th-Abs in serum (RIA, enzymo-assays, ELISA, etc.), such correlation usually failed to be re-established, mainly because the correlation between “biology & anatomy” was difficult to carry out: hence the importance of the present article.

ADCC or antibody-dependent cytotoxicity is a cytotoxic mechanism involved in autoimmune diseases and depends on complex interactions between target cells, antibodies, effector cells, and complement activation. Autoantibodies participate in ADCC by binding to cell surface antigens, thereby allowing NK cells in vivo to target the cell via Fc receptor interaction with the bound antibody.

Present study demonstrates the capacity of TPO-Ab to mediate ADCC using human thyroid cells in culture. Lysis of the cells, measured by an ADCC assay, showed variability between 11 and 75%, depending on the type of cellular substrate used in the assay. Finally, the buckle is perhaps buckled.

(Daniel Glinoer, M.D.; Ph.D.)

See Figure below

**FIG. 3.** ADCC assay. Human thyroid cells were incubated with culture medium alone (□), irrelevant antibodies (Ab; ◻), or human anti-TPO aAbs purified from patients’ sera withAITD (■) with different effector cells (PBMCs, HL-60, THP-1). Values are the percentage of specific lysis (mean ± st).