ATL Development after Adult Infection of HTLV-1?

In the May issue of the Journal, Sanada *et al.* reported adult T-cell leukemia (ATL) in a husband and wife pair, implying that adult infection of HTLV-1 may induce ATL (*Jpn. J. Cancer Res.*, **80**, 401–404, 1989). Since no definite case of ATL has been reported after adult infection, many of us believe that ATL develops in carriers who have been infected with HTLV-1 in early life. The authors tried to attribute the HTLV-1 infection of the wife to sexual transmission through her husband, because the prevalence of the HTLV-1 carriers, 2.7%, in the area from which she had originated (cited from Nishimura *et al.*, 1984) is much lower than the prevalence of carrier wives over 40 years of age if their husbands were carriers, 80% (cited from Tominaga *et al.*, 1987). They estimated that the incidence of ATL in both wife and husband independently infected is very low (0.0025 to 0.01%) using the estimated incidence of ATL in HTLV-1 carriers as 0.5 to 1% (without reference).

The estimated life risk to develop ATL in HTLV-1 carriers does not seem to be as low as 0.5 to 1%. In the Nagasaki Prefecture we have 60–100 cases of ATL every year among ca. 40,000 carriers over 40 years of age. The estimated life risk calculated from these figures seems to be approximately 5%,[1] which is consistent with recently published results.[2,3] Using this figure, the estimated risk to develop ATL in both husband and wife is 0.25% of families when both were carriers. The female population over 40 years of age in Kyushu is approximately 1.5 million. If we assume the carrier prevalence as 5% and the incidence of ATL among carriers as 5%, calculated numbers of couples with ATL in both husband and wife will be approximately 10 ($1{,}500{,}000 \times 0.05^4$). Although this is rare, the presence of a case will not preclude or support the possibility of adult infection.

Currently the efficiency of sexual transmission of HTLV-1 from male to female is not known. However, it does not seem very efficient, since most epidemiological surveys have not shown a significantly higher prevalence of carriers in sexually active young females in the third or fourth decades over that of males, which should be evident if the HTLV-1 is readily transmissible mainly from male to female by sexual intercourse. Therefore, not many wives of carrier husbands are expected to be sexually infected with HTLV-1 within several years of entering marital status. In this case, both of their two children born 3 and 5 years after marriage were carriers (Fig. 3). It is likely that these children were infected through their mother, and that the wife was already a carrier at the time of the first delivery. Therefore, she was more likely to have been infected before marriage, probably from her mother, than after marriage through sexual transmission. Thus, the possibility of ATL after adult infection of HTLV-1 is still in question.

(Received June 26, 1989/Accepted September 1, 1989)

Shigeo Hino

Nagasaki University School of Medicine
Nagasaki 852

REFERENCES

1) Tsuji, Y., Yoshikuni, H., Doi, H., Sugiyama, H., Hino, S., Miyamoto, T., Ishimaru, T. and Yamabe, T. Mother-to-child infection of HTLV-I. *Prog. Pediatr.*, **7**, 85–88 (1987)(in Japanese).
2) Tokudome, S., Tokunaga, O., Shimamoto, Y., Miyamoto, Y., Sumida, I., Kikuchi, M., Takeshita, M., Ikeda, T., Fujiwara, K., Yoshihara, M., Yanagawa, T. and Nishizumi, M. Incidence of adult T-cell leukemia/lymphoma among human T-lymphotropic virus type I carriers in Saga, Japan. *Cancer Res.*, **49**, 226–228 (1989).
3) Murphy, E. L., Hanchard, B., Figueroa, J. P., Gibbs, W. N., Lofters, W. S., Campbell, M., Goedert, J. J. and Blattner, W. A. Modelling the risk of adult T-cell leukemia/lymphoma in persons infected with human T-lymphotropic virus type I. *Int. J. Cancer*, **43**, 250–253 (1989).