Clinical usefulness of a TSH-receptor assay kit (B.R. Smith) was studied. Lubrol-solubilized porcine TSH-receptors used in the kit had an Ka of 4.7x10^4 M^-1 in the assay buffer. Sensitivity was 30 U/ml in the presence of 50U/ml of serum. When immunoglobulin concentrations were used as samples, relative 125I-TSH binding was 100±3.6% (mean±S.D.) in 21 normal controls, while 22 out of 26 untreated patients with Graves' disease (85%) showed 125I-TSH binding less than 92% of controls. Intra- and inter-assay C.V.'s in the assay of TSH-binding inhibitor immunoglobulins were 31±7% and 61±6%, respectively. Potnet TBI was detected in 3 patients with pretibial myxedema and in 2 patients with primary myxedema. Results obtained in 31 Graves' patients showed a good correlation with those obtained by our assay using Triton-solubilized human receptors (r=0.68). When serum was used as samples, serum levels of FT4 and TSH decreased in LATS positive Graves' patients. One serum sample had a TSH receptor blocking antibody. Two sera of Graves' disease had strong binding to 125I-TSH. One case was LATS positive. The other was LATS negative. The binding was increased dose-dependently by serum and IgG amounts. The binding of patient serum with 125I-TSH could be displaced by hTSH especially after purification by thyroid receptor, but not by hTSH. This fact suggest that some Graves'sera contain the antibody for bTSH purified by thyroid receptor.

To investigate the relation between prognosis of threatened abortion and thyroid function test, serum levels of RTU, TT, TSH, TBG, FT, and Estrogen(Es) were measured by RIA in 179 subjects without thyroid disease(101 normal pregnancies, 78 patients with threatened abortion, 47 cured: C and 31 aborted: A after treatment). Serum levels of RTU were N32.3±9.0 (M±SE), C32.2±1.0, A36.5±1.1 at 6.37 gestational week(W), N30.5±1.1, C31.3±0.7, A34.6±1.0 at 8.9W, N25.9±1.0, C27.0±1.2, A32.4±1.8 at 10.11W, N23.2±0.7, C24.3±1.3, A31.4±1.5. Serum levels of FT4 were 12.13±1.20 and N27.9±0.7, C25.4±1.0, A31.5±2.4% at 14.15W. Serum levels of TBG of A were higher than those of C and E, and serum levels of A were lower significantly than those of N or C in every period. There were positive correlations between serum levels of TSH and those of E2, T3 or T4, and serum levels of E2 and those of TT or T4, but there were negative correlations between serum levels of RTU and those of TBG or E2, and serum levels of FT4 and those of TBG or E1 in all subjects. In observed patients with threatened abortion, all patients with increased serum levels of FT4 and decreased those of T3, TBG and E1 were aborted in spite of treatment. These findings suggested that it was possible to judge the prognosis of threatened abortion using thyroid function test.

Clinical studies using TSH receptor assay kit made by Dr. Smith(England) was performed. The determined value was accurate and reproducible by direct assay of serum(50µl). Human TSH(50µl) had no effect on the binding of 125I-bTSH to the receptor. bTSH(Armour) and patient sera (Graves' and Hashimoto's disease) with TSH receptor antibody inhibited dose-dependently the binding of 125I-bTSH to the receptor. TSH receptor antibody in LATS positive Graves'patients(50 cases) were all positive and in LATS negative Graves' patients were negative. There was no relation between LATS activity and TSH receptor antibody activity. One case in Hashimoto's disease was positive(1/3). This means two kinds of TSH receptor antibodies(stimulating antibody and blocking antibody). The two sera of Graves' disease had strong binding to 125I-bTSH. One case was LATS positive. The other was LATS negative. The binding was increased dose-dependently by serum and IgG amounts. The binding of patient serum with bTSH could be displaced by hTSH especially after purification by thyroid receptor, but not by hTSH. This fact suggest that some Graves'sera contain the antibody for bTSH purified by thyroid receptor.