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THE STUDY OF INFLUENCE ON THE THERAPEUTIC DOSE
OF THE VARIATION OF THE ^{131}I -UPTAKE
OF GRAVES' DISEASE IN A SHORT TIME.

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Purpose: The ^{131}I -uptake was repeatedly measured within one week in order to identify the change pattern of the ^{131}I -uptake and the influence to the therapeutic dosage. **Methods:** 100 patients with Graves' disease (33 male and 67 female, age range 17-71 yr with a mean age of 40 yrs) were selected in this study from January 1999 to May 1999. All patients were restricted from taking iodine food or anti-thyroid drugs at least two weeks before examination and during the examination. Any known factors, which could be influence the ^{131}I -uptake, had been strictly controlled. The ^{131}I -uptake measurement was carried out at the interval of 4, 6, 24 hr after administering ^{131}I 74-370 kBq orally in the morning. The effective half-life was measured for 5 days when ^{131}I -uptake was accomplished in the first time, and then the ^{131}I -uptake was repeatedly measured. The Microsoft Excel was utilized to manage and analysis the database. The comparison of the two ^{131}I -uptake rate at the peak points was indicated by the CV values in a formula $(x_1 - x_2) / (\sqrt{2} \times x) \times 100$. "Quimby" formula was used for calculating the therapeutic dose at the two peak uptake points. **Results:** The two peak ^{131}I -uptake rate CV mean value of the 100 Graves' patients was 12.78%, The biggest CV was 61.42%. There were 41% patients with $\text{CV} \geq 10\%$, The absolute difference mean value of the two peak ^{131}I -uptake rate and calculating dose was 11.08%, 44.03 MBq. The biggest different value was 44.26%, 446.59 MBq, respectively. The two peak ^{131}I -uptake rate mean value was 69.66%, 68.23%, average calculate dose was 189.07 MBq, 201.28 MBq, respectively. The difference was not statistically significant. Five cases were measured 3 times, because ^{131}I -uptake rate were significantly decreased in second time, then after 3 days the third time were carried through. The results were obviously increased again. The peak time appeared in different phase in 28%, 18%, respectively. Twice 24 hr ^{131}I -uptake rate absolute difference in 30 cases was more than 13.3% which TSH excitement test diagnostic standard; According to the thyroid hormone restrain test, there were 21 cases more than 25%, six cases more than 50%. **Conclusions:** The results show that the uptake rate of ^{131}I change significantly in a short period and is not stable. Two major findings worth to be mentioned were: one, The effective half life is unreliable and more studies are needed to further investigate the influence in calculating the therapeutic dose; two, The effects of ^{131}I -uptake to interruption of the TSH excitement test result and thyroid hormone restrain test result should also be considered.