Thyrotoxicosis in Community Hospital

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The records of thirty one cases of thyrotoxicosis diagnosed mainly by history and physical examination at Khon Kaen Provincial Hospital and Khon Kaen University (Srinakkarin) Hospital were reviewed. Thirty patients underwent operative treatment while one patient received radioiodine therapy. All patients have been cured, and there were no deaths. There were few complications, one postoperative hemorrhage, one hoarsness of voice and one permanent hypoparathyroidism. The medical treatment using antithyroid drugs failed in this group of patients because of the incontinuity and irregularity of the drug consumption by the patient. Surgical intervention should be the treatment of choice for the young patient under forty in the Community Hospital.

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Thyrotoxicosis has long been a problem for most physicians and surgeons in its diagnosis and treatment. There is little problem in diagnosis where the treatment center is well equipped for special tests such as serum T_4, scanning and others. When this is not available, good history taking and a well performed physical examination are essential if an accurate diagnosis is to be made. At present there are three choices of treatment, these being the use of antithyroid drugs, surgery and radiotherapy. But neither one has been found to be better than the other. There are some drawbacks, complications and uncertainties in each form of treatment. Throughout the progress of medical science, during the past fifty years,[5,6] it has not been able to find the real answer to the etiology and better treatment of thyrotoxicosis.

In the North East of Thailand the social and economic problems of the patients are involved in any form of treatment that may be planned. The physician often find it quite difficult to select the best form of treatment for the patient in a community hospital where certain facilities are not available.

CLINICAL MATERIAL

The records of thirty one thyrotoxicosis patients who were seen and treated during January 1975 to December 1976 (2 years) at Khon Kaen Provincial Hospital and Khon Kaen (Srinakkarin) University Hospital were reviewed. Those who attended the out patient clinics only a few times and those who have not yet completed the course of treatment have been excluded.

Of these thirty one cases, there were thirty Grave's diseases (diffuse toxic goiter with exopthalmos) and one nodular toxic goiter. There were 28 female and 3 male patients or the ratio of 9:1. The average age was 29 years.

The diagnosis of these patients was made mainly on the basis of the history and physical examination. Twenty-seven patients were clear cut cases. There were four cases who were in the early stages and required special investigation. At the time when the

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cases were collected, there was no special laboratory in our hospitals to investigate thyroid diseases. Of these four patients, two had blood taken for serum T_4 and the others went to Bangkok for thyroid scanning and radioiodine uptake, which confirmed the diagnosis of thyrotoxicosis.

The plan of treatment was to give antithyroid drugs first and then to follow up at the clinics every two to three weeks. At least six patients were followed up for 6 months before other forms of treatment were instituted. Of these six patients, only one took the drugs regularly. The rest of the patients were not able to be followed up regularly and thirty patients ended up in having to have operations performed on them.

A 40 year-old woman with the symptoms of diarrhea and tachycardia but small glands was treated with antithyroid drugs for one month. Her symptoms did not improve and she was then referred for radioiodine therapy.

Preoperative Preparation and Operative Procedures

Propyl thiouracil was used for pre-operative preparation mainly because it is inexpensive. The daily doses varied from 300 to 600 milligrams in divided doses. Clinically the euthyroid stage which was measured by resting pulse of less than 90 per minute, usually took one to two months. Lugol's solution was given approximately 10 drops in a glass of water per day for seven to ten days before operation. We used minimum doses of propanolol only in conjunction with antithyroid drugs in five cases when the symptoms were not quite well controlled with antithyroid alone or when the symptoms were severe. Morphine and hyoscine were given for premedication. The duration of operative procedures varied from 90 to 150 minutes. Matched blood was given from 0 to 2 units, the main reason for transfusion being preoperatively low hemoglobin concentration. The operative techniques in removing the thyroid gland was to dissect close to the thyroid gland so that parathyroid glands would not be inadvertently removed or deprived of their blood supply. Approximately 2-3 mg of thyroid tissuses were left on each side. Both recurrent laryngeal nerves were identified before further dissection made along the sides of the trachea.

RESULTS

There were three groups of patients according to the type of treatment.

Antithyroid drugs therapy : The group of 30 patients in this small series failed to respond to antithyroid regime. The reason is because of irregular follow up or incontinuity in taking the medication. There was no blood dyscrasia secondary to drugs in this series. All patients were finally operated upon.

Subtotal thyroidectomy : There were thirty patients who underwent subtotal thyroidectomy following failure of medical treatment. There was neither hypothyroidism nor recurrence of thyrotoxicosis at the time of report.

Radioiodine therapy : One case of thyrotoxicosis was treated by ^{131}I therapy with immediate good response.

Complications of the Operations

There was one immediate postoperative hemorrhage which required reexploration of the neck. The sites of bleeding was rechecked and the postoperative course was uneventful. There was one case of unilateral recurrent laryngeal nerve damage. In this case the operation was difficult because of bleeding and the patient required tracheostomy postoperatively. There were five cases or sixteen percent of transient postoperative hypocalcemia, in which the symptoms and signs of hypocalcemia lasted from 10 days to three months.

Clinically symptomatic hypocalcemia was present in two cases or 6.6 percent. These were symptoms of occassional numbness during illness or menstruation, but the serum calcium taken on several occasions were all found to be normal. A permanent case of hypocalcemia or 3.3 percent required replacement therapy of calcium and vitamin D. There was neither thyroid storm nor mortality.

DISCUSSIONS

Usually there is no need to depend upon laboratory diagnosis of thyrotoxicosis in the patient at the general hospital[2] because most of the cases are already full blown. The treatment can be started immediately especially in the community or village hospital where the special tests are not available. There were only a few border line cases which required special invesgation. From the records of these patients, we found many patients failed to follow medical regimes regularly, even in the well educated ones who seem to understand the need for taking the medication for the entire course without interruption.

The cause of not taking medications regularly can be identified as follows :

1. Misunderstanding : Several patients were not given clear explanations. Finding that after taking the medication for a few weeks, the symptoms got better, the pills were then stopped. When the symptoms recurred the patient returned to the hospital for further treatment.

2. Socioeconomic status : Many patients in this area are very poor and cannot afford the cost of long term use of antithyroid drugs. Some patients live distant away from the hospital and some cannot even contact the outside world in the rainy season.

Table 1 Postoperative Morbidity following Subtotal Thyroidectomy for Thyrotoxicosis

Postoperative Complications	V. VATANASAPT (30 Cases)		R. NAMBIAR[8] (60 Cases)		H.M. REYES[9] (17 Cases)	
	Numbers	Percents	Numbers	Percents	Numbers	Percents
Hypocalcemia					(group I)	
- Transient	5	16.5%	3	5%	1	6%
- Permanent	1	3.3%	5	9%	3	18%
Recurrent Laryngeal Nerves Injury						
- Unilateral	1	3.3%	6	10%	–	–
- Bilateral	–	–	(Temporary)		–	–
Postoperative						
- Hemorrhage	1	3.3%	2	3.3%	–	–
- Wound Infection	–	–	2	3.3%	–	–
Total Permanent Complication	2	6.6%	5	9%	3	18%
Total Complication	8	26.4%	18	30.6%	4	24%

3. Unawareness of the need of taking the medication regularly : Many patients are farmers whose work in the farms in some seasons is so important to earning his living that he will not leave the fields to attend the clinic. Just a few days or weeks of stopping the medication does not seem to mean much to him.

Radioiodine therapy is not suitable for persons under the age of forty[3,5] for many reasons. The major reason is the incidence of hypothyrodism which steadily increasing with time after the treatment. The other problems of isotopic complication will not be discussed here. The patients in our series are almost all younger than forty years therefore surgical treatment should be the treatment of choice.

Subtotal thyroidectomy is the standard and acceptable procedures which we have used. Some authors[4] suggested total thyroidectomy to prevent the recurrence of the disease. The only drawback is that after total thyroidectomy the patients will require a life-long thyroid hormone replacement therapy. This might not be a problem in some countries but here in Thailand it is quite a problem for our patients who dislike and usually neglect what is seemingly, to them, unnecessary medication.

The result of operations in our series is comparable to those of other[2,4,7]. We have not had any recurrence of thyrotoxicosis and also without any mortality. In comparison to the series of Nambiar[8] (Table 1) we found more transient but less permanent hypocalcemia. According to Reyes[9] who reviewed a group of seventeen thyroidectomy patients with very high incidence of postoperative permanent hypocalcemia (18%), he reported that this complication occurred mainly because of parathyroid infarction secondary to division of the inferior thyroid artery. He then modified his technique by dividing this arterial branch very close to the gland and the results have since improved.

We are aware of this serious morbidity and have tried to improve our surgical technique. After the thyroid gland was carefully dissected very close to the gland, it was then removed. The removed gland was thoroughly reexamined on the operative table for the possibility of the presence of parathyroid gland. If there were any suspicious pieces of parathyroid tissue present they were removed from the specimens and sliced into pieces and reimplanted into the sternomastoid muscles using the method reported by Marchetta and Sako.[11] In our recent cases there was no permanent hypocalcemia.

Preparation of the toxic patient for thyroidectomy using propanolol[7,10] alone seems to have gained popularity recently when the preoperative preparation time needs to be shorten. This method is not without danger because the patient is not in a euthyroid state and the medication must be continued in the early postoperative period, at least for 4-7 days in order to avoid complications such as thyroid storm. Some authors do not recommend this method at all.[12] We have successfully used propanolol in this series together with antithyroid drugs.

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