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STUDYING THE SIDE-EFFECTS OF THE TREATMENT WITH ^{131}IIN HYPERTHYROID PATIENTS

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ABSTRACT

Using the radio medicine there were some doubts concerning the irrevocable side effects among the physicians and patients. It necessitated the analyses of the side effects and critical ones in I limits. Thus, we researched the side effects of using I in order to remove the problems and represent a more real side of I treatment for physicians and patients. In this paper, we used retrospective method and the cases of hyperthyroid patients who are treated by I and an 18 month follow-up. If this medicine is not used correctly, considering the efficient factors on dosimeteriy, there will be no much side effect.

Keywords: Hyperthyroid, Iodine 131, Dosimetriy

INTRODUCTION

Iodine 131 is one of the most famous and used isotopes of iodine that its half-life allows it to be used commercially and it is not so long that can create any concerns in inter-organ uses. Its radiology using 360 kilo electron volt energy is suitable for body surveying or other revealing methods, however because of high energy B particles (0.61 mega electron volt), in cases where the patient needs low radiation, it must be avoided (12,9).

Iodine has some radioactive isotope that among them isotopes 123, 125 and 131 are used in nuclear medicine and are produced with different nuclear reactions in rector and cyclotron. I131 is produced by nuclear cleavage of the Uranium 235 (235 U). This nulceocleade is one of the main pollutants of the environment in nuclear explosion.

The half-life of I131 is equal to 8.05 days and this isotope sendsandamong the medicines that are made out of I131 we can refer to following: Sodium Iodine- I. it is used in treating hypothyroid and thyroid cancer and surveying the thyroid. (7,6)

Resingal sodium Iodine 131 by injection, Iodine insulin 131, Iodine and Sodium Hyporate-I (Injective solution), Albumin I, Lipothronin I and Lotiroxine (7).

Although there are several radioactive isotopes for diagnosis of thyroid disease, but only 2 of them i.e I 131 and I 125 are considered for treatment. The aim of treating with Iodine 131 is that there are enough radiation for damaging the cancerous cells and other disease, in toxic Goiter the use of radioactive Iodine causes enough damages to the thyroid function that consequently, the leads it to its natural life not hypothyroidism. Using this material in pregnancy is forbidden, since harms the embryo. The microkuri amount of which is used for diagnosis of thyroid disease and its treatment since destroys the unwanted cells (4).

MATERIALS AND METHODS

When speaking of hypothyroidism and treatment with Iodine radioactive, totally 110 person were treated and following up these 110 persons forms our raw data. Among them 23 were men and 87 were women that relation of men to the women is 1 to 3.7 (9). The average age of the women was 46 and the men 53.

Of course, since these patients are selected, the relation of sexual incidence and the average age cannot show the amounts in total level and incidence of hypothyroidism in society, since most of the patients do not refer to the center or even do not take any action for treatment. Moreover, they can attempt to have surgery or other medical treatment methods.

Among the patients (110 persons), (20) 22 had toxic diffuse goiter and (30) 33 had hot nodules and (50) 55 had toxic multinodular goiter.

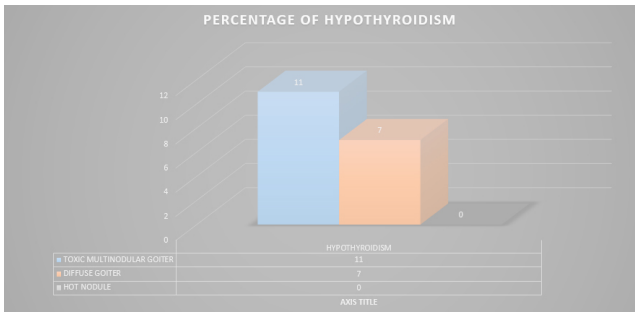

Diagram (1-1)

The diagram 1-1 shows the observed side effects before and after treatment during one year of follow up.

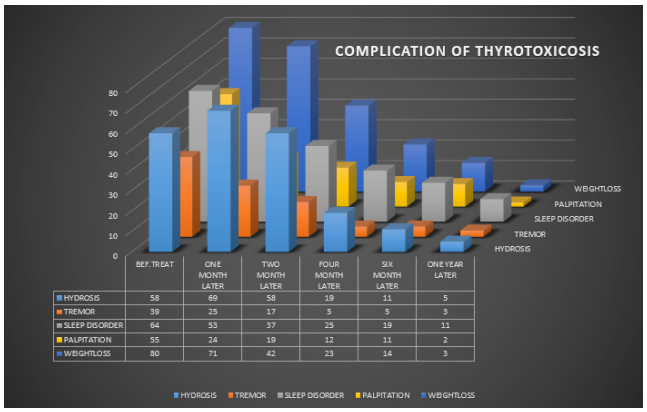

Diagram (1-2)

These numbers shows that during one year the destruction of the gland had continued but its pace has been reduced. It is understood that the effect of Iodine radioactive was fast and considering the clinical improvement it had great effect in the early months after treatment.

Data Analysis Method

The data obtained from the study were analyzed using descriptive statistics method (mean ± standard deviation, and frequency-percent) and chi square test or Fisher exact test as well as using statistical software SPSS (Ver.16). In the present study the amount of $P<0.05$ was considered statistically significant.

RESULTS

Statistically speaking, 6 months after treatment, 81 percent of the patients were improved considering their sweat out, 87.1 considering their tumor, 70.3 sleeping disorder and 82.5 weight loss. Of course, the tumor and weight loss are scales for that are determined by the doctor, but other scales are adjusted considering the situation of the patient.

Regarding the response to the treatment based on hypothyroid group, following results were obtained:

Among 22 published goiters, all 22 patients responded suitably and to failure were observed in this group. (100) 22, out of 33 hot nodule, (87.9) 29 had successful treatment and 55 multinodoular goiter cases (72.7) 40 patient responded to the treatment.

It must be mentioned that (1.8)2 cases of multinodoular goiter did not respond to the treatment after three times of treatment. Moreover, (1.8)2 cases failed in spite of two times of treatment, (10.0)11 needed secondary treatment and that by continuation of the treatment they improved. Considering the side effects, after one year, among 22 published goiter, (31.8)7 after one year of treatment, were hypothyroid. Among (0.0) 33 of hot nodule no hypothyroid was observed and among 55 multinodoular goiter (20)11 showed hypothyroidism after one year.

Totally, after one year (16.4)18 hypothiroidity is observed. Nausea and other symptoms were observed in (16.4)18 patient. Considering the hypo and hyperparathyroidism, nothing is observed. Considering the malignancy and the genetic risks, the study duration, does not allow to give any opinion and it need longer and inclusive studies.

Considering the reoccurrence (2.7)3 case were observed that two of them were TMNG (Toxic multinodoular goiter).

Then it can be concluded that the best group considering their response to published goiter, and safety of the treatment were hot nodule group.

Considering the surgery, the percent of hypothyroidism in short term was equal to surgery and even less than that. Considering the potential dangers of the surgery such as hyperparathyroidism side effects, the side effects of the surgery on old and disable patients and even the bleeding elements, revealed the advantages of treating with radioactive Iodine.

DISCUSSION

The aim of this study was to evaluate the side effects of iodine therapy in hyperthyroid patients, including the occurrence of these symptoms in a range of doses of iodine, at ages allowed to use the radio iodine and response to treatment using iodine131 several times. According to the conducted evaluations as well as the obtained results it can be said that iodine can be used at any age with a bit of caution if other ways to treat the disease do not have adequate effect for various reasons. The results about sterility and cystitis infertility and Cialis give us a relative certainty, about not borne out the future problems for the individual and the reason for the claim is the absence of this complication. The relationship of post-iodine therapy complications with hypothyroidism in patients:

1. Hypo-thyroid effects

16.4%of the patients suffered from hypothyroidism in two hyperthyroidism groups following iodine therapy. It can be concluded that the obtained percentage was not so high compared with iodine therapy in hyperthyroidism group; so, iodine therapy can be administrated safely because, firstly, the frequency of hypothyroidism is low after treatment, and secondly, this deficiency can be removed easily using thyroid medication. In a study on 605 hyperthyroidism patients with six-week follow-up, 3-10 mCi doses of iodine was used and It was found that (76.2%) 461 of them were euthyroid without the need for any further treatment, and no side effect was occurred which was in line with previous studies. According to the obtained results no statistically significant relationship was observed.

2. Irrelative Symptoms – complications

The percentage of patients suffered from irrelative symptoms after treatment was 16.4%. It can be concluded that the number of people suffered from this condition is low and though iodine treatment effect is reduced due to the disposal of materials containing radioactive, the complication has little risk and the patient will be recovered by resting and using fluids. The obtained results were meaningful statistically as well (15-16).

3. Complications Recurrence-complications

2.7% of the patients suffered from complication recurrence following iodine therapy. It can be concluded that considering low number of people suffered from the complication, the administration of Iodine was not risky; so, iodine therapy can be administrated safely. According to the obtained results the relationship was not statistically significant. Weight loss occurred in patients during treatment, but made no complication because by disappearing the symptoms of the disease and returning thyroid activity to normal function as well as disappearing the depression caused by the disease, the weight of the patients (male and female) tended to normal rates; so, iodine therapy can be administrated safely. An important issue that was considered in this study was that 10 to 20 mCi had no severe complications (17).

In some patients iodine therapy responded in several stages which was meaningful statistically considering the obtained results of radioiodine therapy that was not effective in one-stage treatment and needs multi-stage iodine therapy.

Abovementioned statements imply that the medication (iodine131) can be administrated without any complication even in younger people with a bit of caution and proper dose by taking into account factors involved in dosimetry.

Considering the obtained results, we recommend iodine131 is a relatively low complication drug such that if properly administrate, good results will be achieved in terms of recovery and absence of side effects.

CONCLUSION

Among patients (about 16.4), hypothyroidism had fewer occurrences after completion of Iodine treatment and these patients were treated after some period of treatment by thyroid medicines.

Other side effects such as sterility rarely were observed but hypo or hyperparathyroidism never were observed. Existence of other acute side effects in this research were low and could be ignored, therefore, treatment with Iodine 131, is a suitable method for hyperthyroidism and irrevocable side effects are because of lack of care in prescribing the I 131.

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