Introduction
Graves’ ophthalmopathy (also known as thyroid eye disease (TED), dysthyroid/thyroid-associated orbitopathy (TAO), Graves’ (orbitopathy) is an autoimmune inflammatory disorder affecting the orbit around the eye, characterized by upper eyelid retraction, swelling (edema), redness (erythema), conjunctivitis, and bulging eyes (proptosis). Autoantibodies target the fibroblasts in the eye muscles, and those fibroblasts can differentiate into fat cells (adipocytes). Fat cells and muscles expand and become inflamed. Veins become compressed, and are unable to drain fluid, causing edema. Our study compares between medical and surgical management of thyroid associated ophthalmoplegia.

Aims and Objective:
To compare between two modalities of treatment of thyroid ophthalmoplegia
a. Orbital radiation with concurrent steroids
b. Three-wall orbital decompression

Methods and materials
Our research was in compliance with the Helsinki Declaration and approval was obtained from Medical college regulation committee.
16 patients (6 men and 10 women) were identified during the study period. The median age was 50 years (28-67) in men and 49 years (20-56) in women. All of them gave their written consent for this study.

Inclusion criteria
1. Serum TSH<0.40 ng/ml
2. FT3>4.2pg/ml
3. FT4>1.8ng/ml
4. Proptosis
5. Eyelid retraction
6. Ophthalmoplegia

Median TSH, free T3 and free T4 before starting radiotherapy were 0.12 MU/ml, 2.7 ng/dl and 1.6 ng/dl respectively.

Procedure
Group A
8 patients were treated by orbital radiation, with concurrent steroids mainly consisting of high dose intravenous methylprednisolone (1 g/day for 5 days).
All 8 patients received a dose of 20 Gy to both eyes fractionated in 10 daily doses over a 2-week period. Treatment was delivered through parallel opposed
6MV beams using a downward 5° tilt to avoid direct irradiation to the contralateral lens. The treated volume consisted of the entire orbital content from the orbital apex posteriorly to the fleshy canthus anteriorly. Patients were followed at regular intervals by their endocrinologist and ophthamologist. Subjective assessment of diplopia and exophthalmos were performed at baseline, at the end of radiotherapy and at the last visit.

- Group B
- In other 8 patients, three wall orbital floor decompression was done in 6 bilaterally and 2 unilaterally involved patients.

Results and analysis

1. Group A (who had RT and steroids)
   - immediate response
     - outcome of RT + steroids
     - overall outcome
       - stable: 1(12.5%)
       - improved: 7(87.5%)
     - diplopia
       - stable: 4(50%)
       - improved: 4(50%)
     - exophthalmos
       - stable: 1(12.5%)
       - improved: 7(87.5%)

2. Group B (who underwent surgery)
   - No major complication was counted at early post-operative period.
   - At post operative six month control of patients, proptosis was improved by a mean of 5mm, which ranged from 4mm to 6mm.
   - Two patients recovered from their initial partial visual losses, but patients with diplopia failed to show improvement. Three of the patients (37.5%) presented with new onset diplopia. 6 of the patients (75%) had to be re-operated 6 to 12 months after the three-wall orbital decompression procedure by the ophthalmologist due to their persistent diplopia and unfavorable eyelid problems.

Discussion

In our study series, almost all patients had good outcome immediately after RT. A number of retrospective studies have reported the efficacy of orbital irradiation. Marucci summarized the results of 25 publications on radiation for GO and noted that on average, 60% of patients responded favorably to radiation. In our study, 87.5% pt had overall good outcome after RT and steroids, diplopia improved in 27.5% on long time follow up and exophthalmos improved in 94.1% patients. But on the contrary, none of the patients who underwent three wall orbital decompression show improve in diplopia, 37.5% of them had new onset diplopia. Only proptosis was corrected in those patients and 75% of them had to be re-operated.

Conclusion

In this retrospective study, we are able to show that combined therapy with RT and high dose steroids is a good option for patients with thyroid associated ophthalmoplegia when compared to three wall orbital decompression. This treatment modality is well tolerated and long-term complications are almost nonexistent.

Reference