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7 20
, 가
        1998
                            1999
                                 3
                                     26
        Tel:02)3779-1287, Fax:02)780-1279
                           가
                                            가
                              . 가
                                                                            1994
    2
                                                                       가
                                                               6MV
    10cGy ,
              3
                    5~6
                                 150~180cGy
                                                                        4~5
                         18
                                 42
                          가
                                                                                  Prednisone,
                                                                                      6~11)
               가
               가
                                                    가
                                                                                가
                    . 1,2)
                                                   가
                                                           9,12~16)
                                                                9~11)
               3,4)
                                     가 가
                                                                 가
                                                   1994
                                      가
                                                                                       2
                                                 .
Oosterhuis
                                                                           .4) (Table 1).
Neostigmine
                                                                 33
                              Pyridostigmine
                                                 가
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1

bromide(Mestinone®)가

. 1992 12 가 10cGy 3 6 180cGy 가 39 1988 9.0nmole/L 0.6nmole/L (5.59nmole/L grade IV(grade V) grade III 1993 1988 6 Pyridostigmine bromide(Mestinone®), Azathioprine, Pyridostigmine Prednisone bromide(Mestinone®), Azathioprine, Prednisone 가 1993 가 1994 가 가 ,1994 3 , 1996 3 10cGy , 150cGy 3 5 Table 1. Global Clinical Classification of Myasthenic Severity by Oosterhuis (OGCC) OGCC 4 Class 0 **OGCC** No comlaints, no signs after exertion or at special testing 3 20 OGCC 2 Class 1 No disability, Minor complaints, minor signs. The patient .(Fig. 1.) knows that he has MG, but family members or outsiders do not perceive it. The experienced doctor may find mi-4 nor signs at appropriate testing, e.g. diminished eye closure, some weakness of the foot extensors or triceps 32 . (Fig.2.) 42 muscles, the arms cannot be held extended for 3 minutes. The patient may have complaints such as eyelids or

diplopia only when fatigued, inability to perform heavy

Slight disability, clear signs after exertion. The patient has

some restriction, in daily life, e.g. he cannot lift heavy loads, cannot walk for more than an hour, has intermittent diplopia. Bulbar signs are not pronounced. Family members are aware of the sings, but outsiders (inexperienced doctor included) are not Weakness is obvious at

Moderate disability, clear signs at rest. The patient is restricted in domestic activities, needs some help in clothing,

meals have to adapted. Bulbar signs are more pronounced. Signs of MG can be observed by any outsider.

Sever disability. The patient constant support in daily activities. Bulbar signs are pronounced. Respiratory func-

work.

appropriate testing.

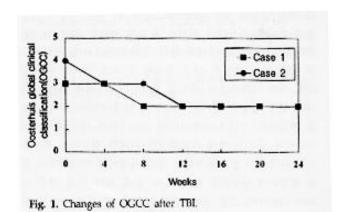
tion is decreased.

Respiratory support is needed.

Class 2

Class 3

Class 5



OGCC 3

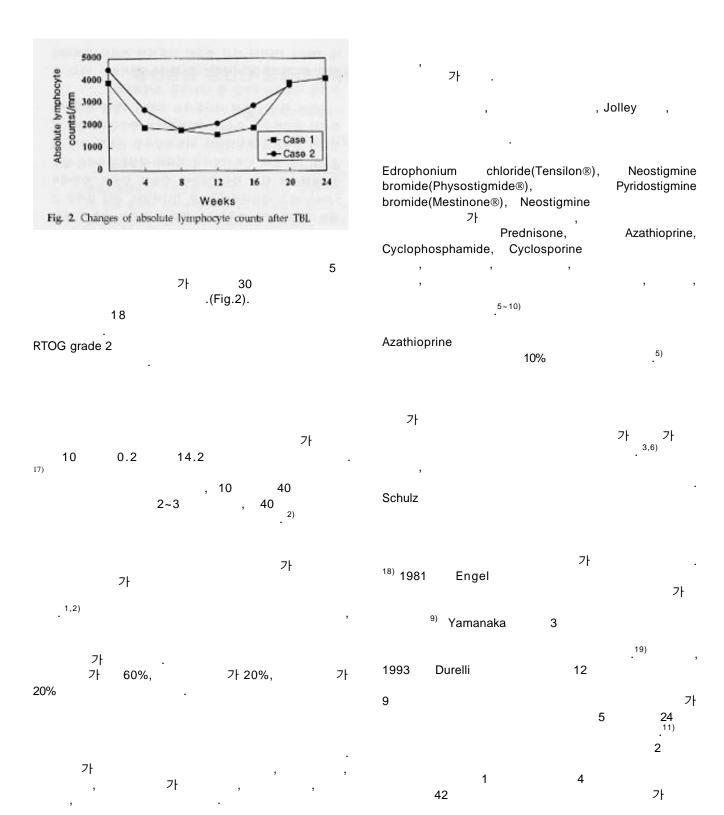
OGCC 2

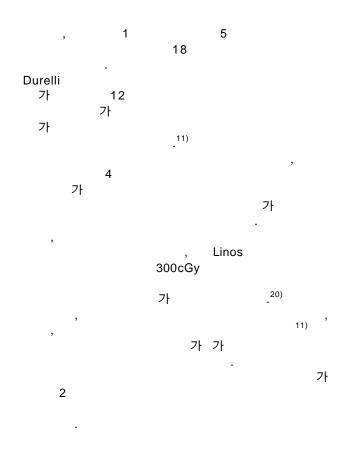
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(Fig.1.)

OGCC 4

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- 1. Engel AG. Myasthenia gravis and myasthenic syndrome. Ann Neurol 1980; 16:519-534
- 2. Phillips II LH. The epidermiology of myasthenia gravis. Neurologic Clinics 1994; 12(2):263-271
- Oosterhuis HJGH. Observations of the natural history of myasthenia gravis and the effect of the thymectomy. Ann NY Acad Sci 1981; 377:678-689
- 4. Oosterhuis HJGH. Myasthenia gravis. A review, clinical neurology and neurosurgery 1981; 83:105-135
- Pascuzzi RM, Coslett HB, Joghns TR. Long term corticoseriod treatment of myasthenia gravis: report of 116 patients. Ann Neurol 1984; 15:291-298
- Tindall RSA. Humoral immunity in myasthenia gravis: effects of steroid and thymectomy. Neurology 1980; 30:554-557
- 7. Hankins JR, Mayer RF, Satterfield JR, et al. Thymectomy for myasthenia gravis: 14 -year experience. Ann Surg 1985;201:618-625
- 8. Pinching AJ, Peters DK, Newsom DJ. Remission of myasthenia gravis following plasma change. Lancet 1976; 11:1373-1376

- Engel WK, Lichter AS, Dalakas MC. Splenic and totalbody irradiation of myasthenia gravis. Ann N Y Acad Sci 1981;377:744-754
- Yamanaka N, Tanaka M, Kurihara T. Total body irradiation therapy for thymectomized myasthenic patients and immunological evaluations. Clin Neurol 1983; 23:467-472
- 11. Durelli L, Fenio MF, Urgesi A, et al. Total body irradiation for myasthenia gravis: A long term follow up. Neurology 1993; 43:2215-2221
- 12. Karadamakis D, Berry RJ. Low dose total body irradiation in the management of refractory heumatoid arthritis. Ar J Radial 1987; 60:297-299
- 13. Strobed S, Field E, Hope AT. Treatment of intractable lucius neuritis with total lymphatic irradiation. Ann Intern Bed 1985; 102:450-458
- Triandos R, Devereux C, Oleske J. T cell subset and disease progression after total lymphoid irradiation in chronic progressive multiple sclerosis. J Neurol Neurosurg Psychiary 1988; 51:980-983
- Cook SD, Devereux C, Troiano R. Total lymphoid irradiation in multiple sclerosis: blood lymphocytes and clinical course. Ann Neurol 1987; 22:634-638
- Strober S, Tanay A, Field E. Efficacy of total lymphoid irradiation in intractable rheumatoid arthritis. Ann Intern Med 1985; 102:441-445
- 17. Phillips II LH, Torner JC, Anderson MS, et al. The epidermiology of myasthenia gravis in central and western Virginia. Neurology 1992; 42:1888-1893
- Schulz MD, Schwab RS. Results of thymic irradiation with myasthenia gravis. Ann N Y Acad Sci 1971; 18:303-307
- Akihiko A, Mutsumasa T, Yoko S, et al. Radiation therapy of invasive thymoma. Int J Radiat Oncol Biol Phys 1990; 18(3):529-534
- 20. Linos A, Gray JE, Orvis AL. Low dose radiation and leukemia. New E J Med 1980; 302:1101-1105

Total Body Irradiation for Myasthenia Gravis with Thymoma - Case Report -

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Myasthenia gravis(MG) is relatively rare occurring as one of important autoimmune disease to affect neuromuscular junction. This study was clinically to evaluate total body irradiation (TBI) against two patients including 33-year and 39-year females for chronic MG with thymoma who hospitalized in the St. Mary's Hospital, Catholic University since 1994 as well as who showed no response by thymectomy, immunotherapy and hormonal therapy. TBI designed by the dose of 150~180 cGy consisting of 10 cGy per fraction, three times a week, for 5~6 weeks using linear accelerator of 6 MV. During the treatment of TBI, they did complain acute side effect such as vomiting and also appear improved physical condition from 4~6 weeks after TBI. Through the follow-up period of 18 or 42 months after TBI, they did not have any symptomatic recurrence. Consequently, the results suggest that TBI can be used as an alternative tool for the patients concurrently for MG with thymoma who had been refractory to various conventional therapies like thymectomy, immunotherapy and hormonal therapy.

Key Words: Myasthenia gravis, Thymoma Total body irradiation