

## Establishing Treatments Enabling Patients With Vitreoretinal-Disorder-Based Acute Blindness to Return to Work

— Preserving the Eyesight of Workers with Diabetic Retinopathy, How to Overcome the Work and Treatment Dilemma —

Field name "Sensory organ impairment due to noise, electromagnetic waves, etc."

In Japan, diabetes mellitus is the source of blindness for very many, and in order to clarify the effect exerted by a worker's working conditions, we investigated the relationship between visual impairment and work for workers suffering from diabetes mellitus based on 519 cases of diabetic retinopathy (215 observation cases, 124 cases of photocoagulation, and 180 cases who underwent corpus vitreum surgery).

In the group that underwent surgery, since there was inadequate treatment of diabetes mellitus, the level of visual acuity deteriorated strikingly (Figs. 12 and 13) and if we

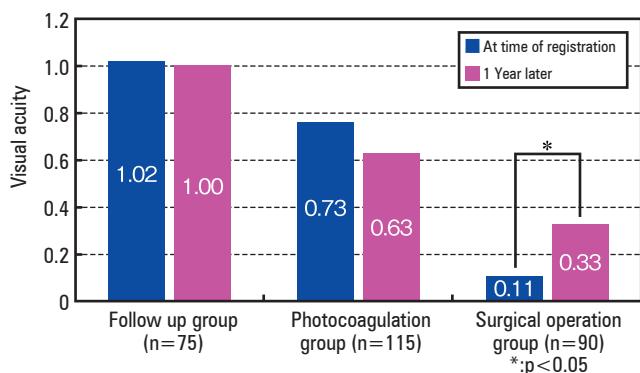


Fig. 12. Visual acuity of those with diabetic retinopathy in each group at the time of registration and one year later.

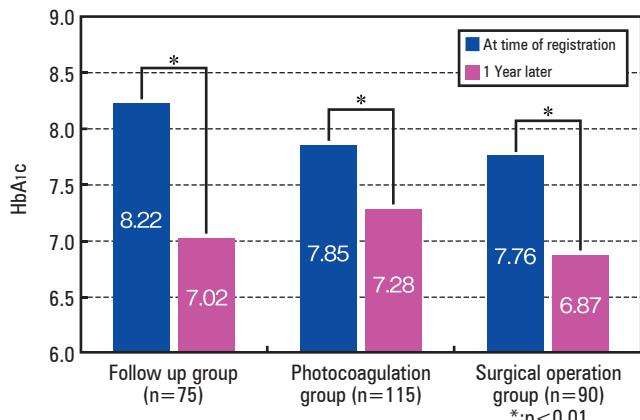


Fig. 13. HbA1c results of those with diabetic retinopathy in each group at the time of registration and one year later.

### HbA1c (Glycated hemoglobin)

If a hyperglycemic state continues for too long, the intravascular surplus of glucose combines with protein in the body. At this point, hemoglobin (Hb), the protein in red blood cells, and the glucose combine to form glycosylated hemoglobin. There are several types of glycosylated hemoglobin, and the type that has a very close relationship with diabetes mellitus is HbA1c.

consider the working status of these cases, retired people comprise half the number in each group (Fig. 15).

From the investigation results above, we believe that workers with diabetic retinopathy are faced with the work and treatment dilemma (Fig. 14)<sup>1, 2, 3, 4, 5, 6</sup>.

In the group that underwent surgery, if we examine the level of visual acuity one year after surgery the level after surgery improved (Fig. 12) and the quality of life (QOL) improved. However, the percentage of retired people showed no improvement one year later, and even if the level of visual acuity returned to the previous level we confirmed that it was unrelated to reemployment (Fig. 15)<sup>1, 2, 3, 4, 5, 6</sup>.

If we examine the ophthalmological and internal medicine histories, we found that workers were unable to go to the hospital as often as they should have because they devoted themselves to their work (Table 4).

In the future, with close cooperation between the attending physician and the workplace, we need to construct a system that focuses on medical treatment of diabetes mellitus and that helps employees from retiring due to illness.

### Facts about diabetic retinopathy

#### Patient side:

Because the patient is not committed to medical treatment in order to continue employment, visual acuity deteriorates resulting in loss of employment.

#### Treatment side:

Medical treatment at an early stage is desirable.

→ **Dilemma between employment and medical treatment!**



### Essential to create a system for resuming work !?

Fig. 14. Dilemma between work and diabetic retinopathy treatment for workers

Table 4. Ophthalmological and Internal Medicine Histories for Each Group

	Follow up group	Photocoagulation group	Surgical operation group
Ophthalmological history	42%	31%	47%
Internal medicine history	74%	65%	65%

(If the patient was continually commuting to hospital for more than 1 year prior to registration, he is considered to have a history.)

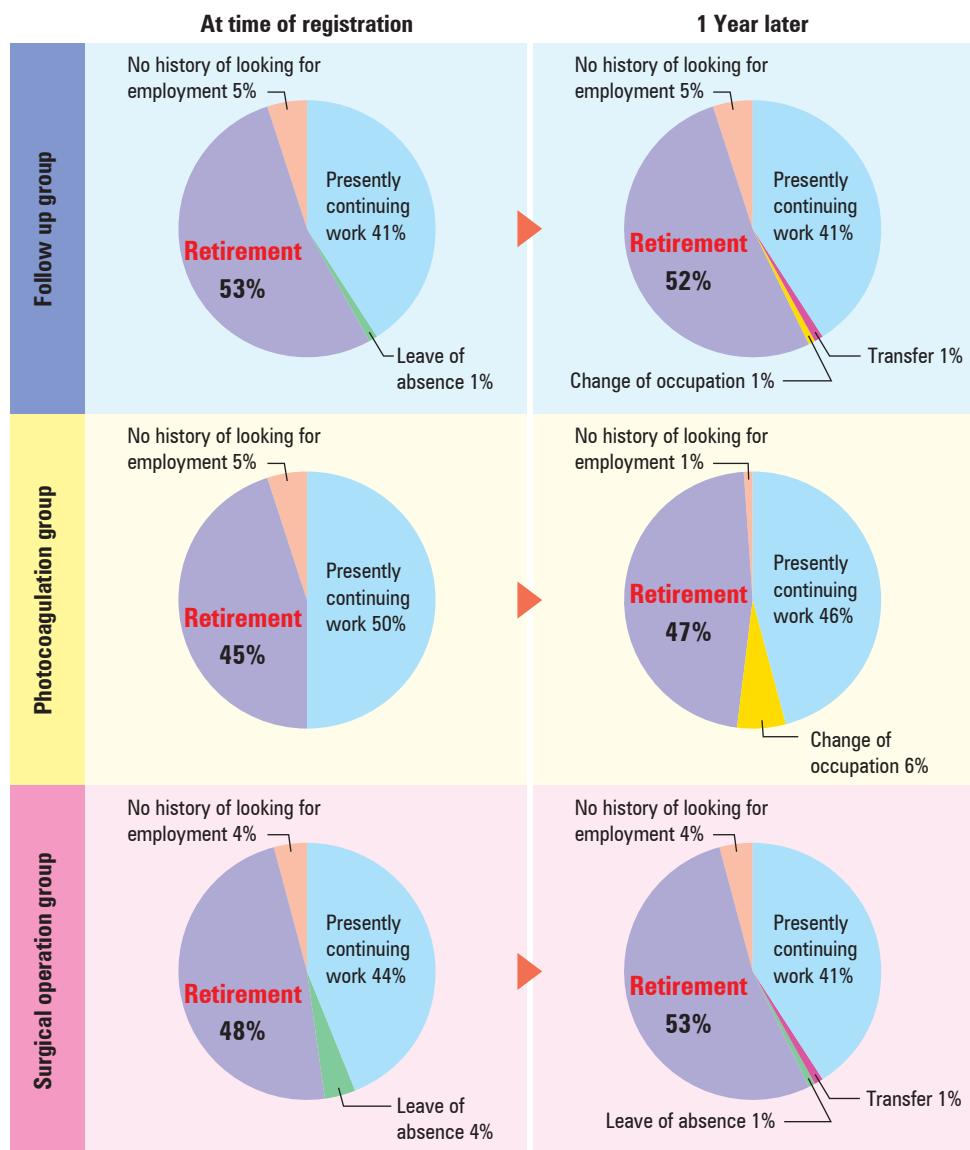


Fig. 15. Employment conditions for diabetic retinopathy sufferers in each group at time of registration and one year later.

## References:

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\* Reference 2 can be viewed at <http://www.research12.jp/h13/index.html>, a site dedicated to the research and development, and dissemination projects related to the 13 fields of occupational injuries and illnesses.

\* Reference 3 can be viewed at <http://www.research12.jp/h13/index2.html>, a site dedicated to the research and development, and dissemination projects related to the 13 fields of occupational injuries and illnesses.