

## CASE REPORT

# Return to Work Assessment in a Radiographer Assistant Suffering a Hemianopsia due to an Ischemic Stroke

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## ABSTRACT

Return to work assessment (RTWA) has been performed to a radiographer assistant suffering a hemianopsia due to an ischemic stroke. Stroke occurred two months prior to the examination. The general condition of the patient was good. The systemic examination was unremarkable except the presence of a partial vision loss in the left eye and often feeling fatigue and down. Perimetry Full-field 120 Point Screening Test confirmed a left temporal hemianopsia while Patient Health Questionnaire's score (PHQ-9) indicated a moderate depression. The two conditions were not fully compatible with the job demand of a radiographer assistant, which required a complete and clear visual field as well as a good mental status. Risk assessment indicated that the patient might encounter health and safety issues if he resumed duty without work adjustment. The clinic still wanted to employ the patient and agreed to provide support. The patient was declared 'fit' to resume his duty with some recommendations.

**Keywords:** Return to work, Hemianopsia, Stroke

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## INTRODUCTION

Ischemic stroke is a clinical condition that resulted from a reduced blood supply due to the blockage of the brain vessels. It is a medical emergency and accounts for 60-80% of overall stroke. In 2010, more than 11 million people suffered ischemic strokes and 3 million people died of this disease. The disease is associated with a considerable burden, mainly due to post-stroke disability and post-stroke longevity (1).

Most post-stroke patients suffer a varying degree of physical, mental and social impairments. These residual impairments can be mild but can also be severe. The more severe the residual impairment, the more difficult a patient can return to work (2).

Some studies reported different figures on returning to work in post-stroke patients. A study in Australia reported that 75% of post-stroke workers returned to their jobs within one year after stroke. In Danish, 50% of post-stroke workers left their jobs permanently within one year after stroke (3).

## CASE REPORT

Mr. S, 44 years, has worked as a radiographer assistant at one clinic in Qatar. His daily activities were to perform various radiological examinations (X-ray, ultrasound and bone densitometry). He worked 8 hours per day, 5 days per week (office base). During the work, he used various protective gears such as lead apron, thyroid shield and personal radiation dosimeter.

One day, he came to the clinic and complained of weakness in left arm and legs associated with headache, dizziness and feeling of imbalance. He had no facial asymmetry, chest pain and gait abnormalities. He had pre-diabetes and dyslipidemia. The patient was conscious, blood pressure was 145/85 mmHg and heart rate was 98 bpm. No abnormalities elucidated on physical examination, including motoric, sensory and autonomic function.

The patient was admitted to the hospital and underwent relevant examinations. The blood biochemistry showed increased ALT (49 u/l), fasting glucose (8.9 mmol/l), HbA1C (6.4%) and LDL (3.9 mmol/l). CT angiogram revealed clogged P2 segment in distal right posterior cerebral artery (PCA). Head MRI showed acute right PCA territorial infarction with significant stenosis in the right P2 of PCA segment. The diagnosis was an ischemic

stroke - posterior cerebral arteries. A thrombolysis was initiated. In the day fourth, the patient was discharged.

Two months later, the patient came to the company clinic for a return to work assessment (RTWA). For this purpose, the patient underwent the assessments of capacity, risk and tolerance. In the interview, the patient complained of partial loss of sight in the left eye and often feeling down. His vital signs were stable and BMI was 28.1 kg/m<sup>2</sup>. Heart, lung and abdomen examinations were unremarkable. No paresis on the face and extremities. No motoric and sensory deficit. Cranial nerves examination revealed lateral hemianopsia of the left eye.

Assessment of capacity was performed by comparing the job demand and the current medical condition of the patient. For this, the patient underwent Chester Step Test and Six Minutes Walking, which yielded scores of 30-36 (average) and 13-14 (somewhat hard) respectively. The eye examination revealed normal visual capacity (6/6) but a loss of sight in the outer half of the left eye (temporal hemianopsia). A subsequent perimeter examination confirmed a left temporal hemianopsia with a maximum capacity of 71/120 degrees. For a mental status assessment, the patient completed the Mini-Cog and MoCA questionnaires, which resulted in scores of 5 and 26 respectively, indicating the absence of cognitive and memory and impairments. The patient scored 10 in Patient Health Questionnaire-9, pointing to a moderate depression. Based on the examinations, the patient had impairments (left temporal hemianopsia and moderate depression), disabilities (reading, mobility and driving) and a handicap (not being able to drive).

Assessment of risk revealed that the patient might encounter health and safety issues to himself if he resume duty without a work adjustment. The hemianopsia might disturb his work accuracy and cause injuries at work. The risk would be more if the patient continues driving a car to work. Risks to coworkers and the environment were minimal.

Assessment of tolerance revealed that the clinic still wanted to employ the patient and agreed to provide necessary support. The patient himself had a high motivation to work.

Considering the above-mentioned assessment, the patient was considered 'fit' to resume his duty as long as the patient and the clinic comply with the recommendation (fit with note). The recommendation to the patient were to stop driving and comply with the recommended treatments. The patient should also be cautious when work to prevent error and possible injury. The clinic was recommended to allow the patient to continue his treatment, to provide support including arranging a company transportation for the patient to work, to regularly review the patient's works and to

conceal sharp objects in the radiology office that might harm the patient.

## DISCUSSION

RTWA is a medical assessment on the fitness of a worker to return to his previous duty or job. It provides recommendation on whether a worker can resume duty and offers advice for a smooth return to work. RTWA applies to workers who have injuries or undergone hospitalization, surgery and other major treatments. RTWA is valuable in facilitating workers to return to their jobs. Some studies reported that post-stroke workers undergoing RTWA experienced improved health status, social relationship and quality of life (4).

Assessment of capacity is the core element of RTWA. It compares the job demands and the current health conditions of workers. In the job demand, various aspects needed to perform a job are thoroughly analyzed, including the physical performance, motor skill, work protection, organization, mental status, temporal work, ergonomic and sensing. The demand is then compared with the latest health conditions of workers using various tests and examinations. In this case, the job demand for a radiographer assistant was compared to the patient's post-stroke condition.

The summary of the comparison is presented in Table I. The comparison in the table signifies two incompatibility issues. First, the job demand necessitated the worker to have a stable emotional condition and free of psychotic and severe mental disorder. In the examination, the patient often had the feeling of fatigue and down. Apart from prediabetes and dyslipidemia, the patient's laboratory profiles were normal. Based on his scores in Mini-Cog and MoCA questionnaires, the patient had no cognitive dysfunction. A mental screening with Patient Health Questionnaire-9 indicated the patient had a moderate depression. Subsequent psychiatric consultation confirmed the patient had depression and was given Escitalopram. Some studies reported that the prognosis of moderate depression was relatively good, especially when adequate treatment is started earlier. Even in the major depression, the recovery rate was 58% in 2 years observation and 17% in 6 years observation (5).

Second, the job demand required the worker to have a good visual capacity and complete visual field. The eye examination revealed a left temporal hemianopsia with a maximum capacity of 71/120 degrees. Based on a direct observation, the patient could still perform most of the radiological tasks even with this visual limitation. Some studies reported that 17-55% of hemianopsia had a complete recovery within 1-2 months. After 6 months, recovery hardly occurred. At the time of evaluation, the patient was in the second month of post-stroke and the recovery might occur.

**Table 1: Assessment of the Job Demand and Current Condition**

| Aspects           | Job demand   | Current condition   | Tools used to assess   | Compatibility        |
|-------------------|--|---|--|----------------------|
| Physical capacity | Performing sitting task, light to moderate effort with physical capacity 1.5-3.0 METs                                  | Able to sit, walk and perform regular work and daily activities.  | Chester Step Test's score 30-60 (average), Six Minutes Walk Test's score 13-14 (somewhat hard) | Compatible           |
| Mobility          | Able to stand and walk at least 15 minutes without sitting   | Able to stand and walk 25 minutes without sitting   | Direct observation, Six Minutes Walk Test's score 13-14 (somewhat hard)                        | Compatible           |
| Muscle strength   | Power of upper and lower extremities should be 5/5   | Power of upper extremities were 5/5 and lower extremities were 5/5  | Muscle strength examination on physical examination  | Compatible           |
| Motoric           | Able to grip firmly and perform flexion and extension movement without limitation in upper and lower extremities       | Able to grip firmly and perform flexion and extension movement without limitation in upper and lower extremities                                | Motoric examination on physical examination  | Compatible           |
| Environment       | Able to work in the environment with radiation, ergonomic and psychosocial hazard                                      | Had been working in the same job and position during the last 13 years and did not have issues on environment                                   | History taking and occupational record   | Compatible           |
| Organization      | Able to work in the multicultural environment and able to communicate well with patients, colleagues and management    | Had been working in the same job and position during the last 13 years and did not have issues on organization                                  | History taking and occupational record   | Compatible           |
| Mental            | Had a stable emotional level, no cognitive disturbance, free of psychotic and other severe mental disorders            | Always feeling fatigued and down. The cognitive test showed no cognitive dysfunction. Screening of mental disorder revealed moderate depression | Mini-Cog, MoCA, Patient Health Questionnaire 9   | Some incompatibility |
| Temporal work     | Not required to work in night shift  | Had been working in the same job and position during the last 13 years and did not have temporal work issues                                    | History taking and occupational record   | Compatible           |
| Ergonomic         | Able to bend, squat, repeated hand movement, awkward movement when positioning patients and performing the examination | Had been working in the same job and position during the last 13 years and did not have ergonomic issues  | History taking, occupational record and direct observation                                     | Compatible           |
| Eye               | Visual capacity 6/6 with or without glasses, the visual field should be clear and complete                             | Visual capacity 6/6 with glasses but had left temporal hemianopsia with a maximum visual field in left eye 171/120 degree                       | Perimetry Full field 120 Point Screening Test  | Incompatible         |
| Ear               | Not affected by severe hearing loss (above 61 dB hearing loss)   | Normal hearing capacity   | Audiometry   | Compatible           |
| Nose              | No anosmia   | Normal smelling capacity  | Self-administered smelling test  | Compatible           |
| General health    | Does not have a severe health condition that may disturb his performance in work                                       | Had overweight, dyslipidemia and prediabetes and in a plan to taking medication. This condition did not disturb his performance at work.        | Physical and laboratory examinations   | Compatible           |

Concerning the overall physical capacity, the patient had no limitation to perform his job. He could perform daily activities and had adequate scores in the Chester Step Test and Six Minutes Walking Test. In some literature, stroke without residual limitation in daily activities is considered as a mild stroke. The patient's age was 44 years old and categorized as a young adult. Some studies reported that 70-80% mild stroke in young adults had no significant disturbance in daily activities. Some patient's conditions also favored a good prognosis. The patient was male, graduate, professional and worked in large size company with huge numbers of workers. All these conditions were the predictors of the post-stroke's good prognosis.

Considering the capacity, prognosis and tolerance levels in this case, the patient was declared 'fit' to resume his job as a radiographer assistant with some recommendations. This status would be reviewed after six months. Qatar Law (No 2 of 2004) also prohibits a discrimination against disabled people and ensures the rights of appropriate employment and rehabilitation for them.

## CONCLUSION

Three core elements should be assessed in RTWA, namely the patient's capacity, risk of return to work

and tolerance of the coworkers and employer. A worker having an inadequate capacity may still be given an opportunity to resume work as long as the potential risk is tolerated and the coworkers and employer agree to support the worker. In this case, the patient had left temporal hemianopsia that potentially disturbs his work accuracy. The potential risk is eminent for the patient but not to others. The clinic agreed to accept the patient's condition and provide support, including the company transportation. The patient agreed not to drive. In addition, the general prognosis of the patient's condition was good. All these factors led him to have 'fit with notes' status in RTWA.

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