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# Occupational therapy for patients with chronic diseases: CVA, rheumatoid arthritis and progressive diseases of the central nervous system

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## Summary

A substantial proportion of the patients treated by occupational therapists have a chronic disease. The aim of this study was to describe the outlines of occupational therapy treatment for three specific groups of chronic diseases: progressive neurological diseases, cerebrovascular accident and rheumatoid arthritis. A total of 143 therapists, working in 49 occupational therapy departments in The Netherlands, were asked to complete a standard registration form based on the ICDH. This form consisted of three sections: (a) patient characteristics, (b) occupational therapy diagnosis and treatment goals in terms of ICDH and (c) treatment characteristics. The present study concerns 507 patients: 102 had progressive neurological diseases (PND), 338 had CVA and 67 had rheumatoid arthritis (RA). Our results showed that each patient group was characterized by a specific treatment approach. Especially at the level of treatment programmes substantial differences between groups were observed. Besides the clear differences, similarities in approaches were found between the PND and RA group, e.g. total time spent on therapy differed largely between the PND and RA patients (both averages 6 h) and the CVA patients (average 14 h).

## Introduction

In 1990 in the Netherlands 3.4 out of 15 million people were diagnosed with a chronic disease. The 10 most frequently occurring chronic diseases† are predicted to

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† The top 10 of most frequently occurring chronic diseases in the Netherlands are: osteoarthritis, chronic non specific lung disease, hearing problems, eczema, depression, coronary disorders, cataract, CVA and dementia.

increase to 4.4 million in the year 2010, due to the expected growth of the number of chronic diseases and to the ageing population.<sup>1</sup>

The effects of chronic diseases can affect all areas of an individual's life, necessitating adjustments in life patterns and directions. Occupational therapy (OT) is an important service for patients with a chronic disease. It focuses on increasing the functional capacity of the patients by using ordinary activities of everyday living (such as dressing, making a bed, taking a shower, typing, taking a bus). Research has also shown that the main focus of OT is on disabilities.<sup>2,3</sup> This means that the functional capacity of patients is the point of action in therapy. The importance of stressing the patients' abilities is also expressed by patient associations, stating that patients do not want to be judged for what they cannot perform, but they want their abilities to be the central focus of attention.<sup>4</sup> This point of view links up with the concepts of the profession of OT. The purpose of OT is to prevent handicap and to promote, maintain or restore occupational performance, health and spiritual well-being, using activities or tasks; specifically self-care, productivity and leisure.<sup>5,6</sup>

However, knowledge is lacking on the specific characteristics of OT treatment for patients with specific diseases. This characterization can serve as a basis for standards of the profession, and for the tuning of care with other disciplines. Knowing the characteristics of OT on the specific groups of chronic diseases makes it possible to further define the focus of OT.

Literature provides some information on the hypothesized direction of OT treatment. With cerebrovascular accident patients OT aims at the recovery of sensorimotor and cognitive functions, especially in the first year after the stroke when (spontaneous) recovery can occur. Interventions are chosen to stimulate this recovery

process.<sup>7,8</sup> With patients with progressive neurological diseases the aim is on *maintenance* of functional abilities.<sup>7-11</sup> The problems in daily life for this patient group are mainly due to energy problems. An important aspect of OT treatment is to keep the patient's functional level as high as possible through a variety of therapeutic interventions. *Prevention* is of importance for patients with rheumatoid arthritis, meaning that principles of joint protection and energy intake during the day are included in the therapy programme.<sup>7,8,10,12</sup> Joint protection in combination with changing the patient's attitude towards a strict schedule helps to prevent the (further) deterioration of joint(s), and promotes independent living.

The aim of this study is to describe the outlines of OT treatment for three groups of patients with a chronic disease: cerebrovascular accident (CVA), progressive neurological diseases (PND) and rheumatoid arthritis (RA). These three patient groups were selected since they represent the three largest groups of patients with chronic diseases in our survey. The PND group consists of diseases such as multiple sclerosis, Parkinson's disease, and amyotrophic lateral sclerosis. In this article the outlines of OT treatment for these three patient categories will be described, and compared for the following items: general patient characteristics, treatment goals, interventions, treatment programmes and length and intensity of treatment.

## Methods

### DESIGN

A survey on OT in the Dutch health-care system was carried out in the period from January 1992 to March 1993. Randomly, 49 institutions with an OT department were chosen. A total of 143 therapists participated in this study. These therapists were working in nursing homes, rehabilitation centres, general hospitals and psychiatric hospitals. These four fields cover most of the OT services in the Netherlands.<sup>13</sup> Occupational therapists also work in institutions for the mentally handicapped, in the treatment of children, in private practices and other kinds of treatment in ambulatory care. Because OT services in these fields are relatively small, these fields are not included.

The participating institutions were randomly selected from a list of institutions in which occupational therapists are working, produced by the Dutch association of occupational therapy.<sup>14</sup> A comparison of their participating therapists with a representative sample of occupational therapists working in The Netherlands<sup>15</sup> did not indicate any substantial differences.

Table 1 Main categories of treatment goals in the study

| <i>Impairments</i> | <i>Disabilities</i> | <i>Handicaps</i>      |
|--------------------|---------------------|-----------------------|
| Motor              | Endurance†          | Physical independence |
| Sensory            | Locomotor           | Mobility              |
| Cognitive          | Personal care       | Occupational role     |
|                    | Domestic            |                       |
|                    | Specific skills‡    |                       |
|                    | Leisure             |                       |

† Physical and psychological endurance.

‡ Handling physical environment and budgeting.

### Registration form

To investigate characteristics of the participating patients a standard registration form was used. This registration form consisted of three sections. The *first section* concerned patient characteristics (i.e. gender, type of insurance, age), referral characteristics and medical/psychiatric diagnosis. The *second section* concerned the OT diagnosis; this was based on the *International Classification of Impairments, Disabilities and Handicaps*.<sup>16</sup> The reliability of the OT diagnosis appeared to be satisfactory to good.<sup>3</sup> In this second section therapists also filled out the treatment goals they had chosen. Treatment goals were derived from the diagnosed impairments, disabilities and handicaps. For example if disabilities in leisure activities were diagnosed, the occupational therapist could indicate that the treatment goal was (or was not) directed towards leisure disabilities. Therapists were allowed to indicate up to a maximum of five goals. The treatment goals are shown in Table 1.†

The *third section* concerned characteristics of the treatment (length, intensity), the therapeutic interventions and health-care programmes (overall goals) that were used. This section was filled in either at 16 weeks (end of registration period) or at the end of the treatment if the treatment was finished earlier. With each treatment goal at most two interventions and two health-care programmes could be chosen. With the interventions the occupational therapist indicated which therapeutic activities were carried out, and with the choice of the programmes the therapist implied which outcomes of treatment were aimed at.

The interventions were: self-care activities, productivity activities, leisure activities, instruction and advice, group therapy, splints, and other interventions. The original list of interventions in the registration form was longer. This list of interventions was reduced by

‡ Actually the list of treatment goals in the registration form was longer. The treatment goals shown in Table 1 are a reduction of the original list (see ref. 17).

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Table 2 General characteristics of the three patient categories (percentages)

|   | Progressive neurological diseases<br>(n = 102) | Cerebrovascular accident<br>(n = 338) | Rheumatoid arthritis<br>(n = 67) |
|---|--|---------------------------------------|----------------------------------|
| Age   |  |                                       |                                  |
| < 55 years  | 28.0   |                                       |                                  |
| 56-64 years   | 19.0   | 19.8                                  | 32.3                             |
| 65-75 years   | 14.0   | 15.8                                  | 30.8                             |
| > 75 years  | 39.0   | 28.9                                  | 78.5                             |
| Gender: female  | 66.7   | 35.6                                  | 18.5                             |
| Hospital-based care: inpatients                               | 39.2   | 51.8                                  | 77.6                             |
| Treatment at home: at least two OT treatment sessions at home | 64.5   | 63.2                                  | 21.5                             |
|   |  | 36.1                                  | 45.0                             |
| <i>Diagnosed impairments, disabilities and handicaps:</i>     |  |                                       |                                  |
| <i>Impairments</i>  |  |                                       |                                  |
| Motor   | 88.2   |                                       |                                  |
| Sensory   | 48.0   | 95.3                                  | 100.0                            |
| Cognitive   | 50.0   | 71.0                                  | 88.1                             |
| <i>Disabilities</i>   |  |                                       |                                  |
| Endurance   | 78.4   |                                       |                                  |
| Locomotor   | 87.3   | 66.9                                  | 65.7                             |
| Personal care   | 84.3   | 84.6                                  | 88.1                             |
| Domestic  | 73.5   | 83.4                                  | 83.6                             |
| Specific skills   | 59.8   | 71.9                                  | 88.1                             |
| Leisure   | 63.7   | 56.2                                  | 83.6                             |
| <i>Handicaps</i>  |  |                                       |                                  |
| Physical independence   | 71.6   | 73.1                                  | 70.1                             |
| Mobility  | 86.3   | 74.6                                  | 58.2                             |
| Occupational role   | 66.7   | 87.9                                  | 73.1                             |
|   |  | 64.5                                  | 79.1                             |

Table 3 Impairments, disabilities and handicaps chosen as a treatment goal by occupational therapists (percentages)

|                       | Progressive neurological diseases | Cerebrovascular Accident | Rheumatoid arthritis |
|-----------------------|-----------------------------------|--------------------------|----------------------|
| <i>Impairments</i>    |                                   |                          |                      |
| Motor                 | 62.7                              |                          |                      |
| Sensory               | 14.0                              | 57.0                     | <b>79.3</b>          |
| Cognitive             | <b>23.3</b>                       | 16.0                     | 20.7                 |
|                       | 100                               | <b>27.0</b>              | 0                    |
| <i>Disabilities</i>   |                                   |                          |                      |
| Endurance             | 9.2                               |                          |                      |
| Locomotor             | <b>29.7</b>                       | 4.7                      | 8.0                  |
| Personal care         | 29.7                              | 23.1                     | 16.7                 |
| Domestic              | 15.4                              | 33.7                     | 27.3                 |
| Specific skills       | 4.0                               | 18.8                     | <b>24.7</b>          |
| Leisure               | 12.0                              | 5.6                      | <b>15.3</b>          |
|                       | 100                               | 14.1                     | 8.0                  |
| <i>Handicaps</i>      |                                   |                          |                      |
| Physical independence | 40.2                              | 100                      | 100                  |
| Mobility              | <b>57.1</b>                       | <b>52.0</b>              | 41.3                 |
| Occupational role     | 2.7                               | 42.2                     | 48.4                 |
|                       | 100                               | 5.8                      | 10.3                 |
|                       |                                   | 100                      | 100                  |

The percentages printed in bold indicate a difference of more than 10%.

4,  $p = 0.00$ ). Table 3 shows that in all three groups motor and sensory impairments were chosen most often. A large difference of more than 10% was found for motor impairments. With the RA patients this item was relatively often emphasized. A difference of more than

10% was also found for cognitive impairments; these were chosen in PND and CVA patients, not in RA patients.

At the level of *disabilities* the diagnostic groups differed significantly ( $\chi^2 = 39.53$ , d.f. = 10,  $p = 0.00$ ).

combining specific intervention items as follows. *Self-care* is defined as those activities or tasks which are done routinely to maintain the person's health and well-being in the environment.<sup>5</sup> The following items from the registration form were joined into this category: personal care, locomotor and communication activities. *Productivity* is defined as those activities or tasks which are done to enable the person to provide support to the self, family and society through the production of goods and services.<sup>6</sup> The following items of the registration form were put together into this category: domestic and occupational activities. *Leisure* is defined as the components of life which are free from work and self-care activities. The following items in the registration form were joined: leisure, arts and crafts and play activities. The *advice/instruction* category consists of the items advice/instruction on sitting and standing, on the use of aids, and on the adaptation of the home (environment). The *group therapy* category consists of two items on task- and problem-oriented therapy.

The health-care programmes were derived from Reed and Sanderson.<sup>5</sup> Five health-care programmes were distinguished: prevention, developmental, recovery, environmental adjustment and maintenance programmes. These programmes can be considered as overall goals determining the direction of treatment. With each treatment goal a specific health-care programme can be chosen, depending on which outcomes of treatment are aimed at. For instance if the 'recovery' programme is chosen with disabilities in personal care, the accent of the treatment will be on exercises; however, if the health-care programme 'environmental adaptations' is chosen, the accent of the treatment will be on selection and use of adaptive devices and environmental adaptations.

#### PROCEDURE

As described in an earlier article, a total of 1051 patients were included in the survey study on occupational therapy in The Netherlands.<sup>17</sup> In the present article a selection was made out of this group on the basis of the medical diagnosis.<sup>18</sup> These diagnoses were CVA (ICD-10-CM, Chapter 9, 9.60-67), rheumatoid arthritis (ICD-10-CM, Chapter 13, 13.05-06), progressive neurological diseases (ICD-10-CM, Chapter 7, 7.20; 7.31; 7.35; 7.37; 7.60; 7.61; 7.71).

#### ANALYSIS

The results are described in terms of descriptive statistics. Differences between the three groups were

tested with the chi-square method ( $\alpha = 0.05$ ). This test was applied only if less than 20% of the cells had an expected frequency less than five and no expected value was less than 1.<sup>19</sup> A standard was applied to determine the importance of the differences between the three patient categories. Only the results that showed a difference of 10% or more between the categories are considered important and are discussed.

Hiloglinear analysis<sup>20</sup> was applied to test whether the differences between the three patient groups were still present after controlling for age and gender of the patients.

## Results

### PATIENTS

The study included 507 patients: 102 with PND, 338 with CVA and 67 with RA. General patient characteristics are shown in Table 2. The distribution of age differed significantly among the three groups (chi-square = 25.26, d.f. = 6,  $p = 0.00$ ). Patients with PND and with RA were more frequently younger than 65 years, whereas patients with CVA were relatively frequently over 65 years old.

A significant relationship was also found between the diagnostic groups and inpatient or outpatient status (chi-square = 47.69, d.f. = 2,  $p = 0.00$ ). CVA patients were relatively often inpatients, while patients with PND and RA were relatively often outpatients. More than one OT session at home was relatively often applied to the PND group, whereas for the other two groups only one treatment at home occurred relatively often (chi-square = 6.71, d.f. = 2,  $p = 0.03$ ).

Table 2 also shows that impairments, disabilities and handicaps were frequently diagnosed in the three patient groups, by the occupational therapist. All disability and handicap items were diagnosed with more than half of the patients. At the level of impairments, for patients with RA, no cognitive impairments were diagnosed.

### OCCUPATIONAL THERAPY TREATMENT GOALS

The three patient categories differed with regard to treatment goals. At the level of *impairments* the diagnostic groups differed significantly (chi-square = 10.80, d.f. = 4,  $p = 0.03$ ). These differences were not due to age or gender differences between the diagnostic groups: after controlling for age and gender the differences between the diagnostic groups were still significant (likelihood ratio chi-square = 52.03, d.f. =

**Table 4** Interventions chosen by occupational therapists in the three patient groups (percentages)

|                         | <i>Progressive neurological diseases</i> | <i>Cerebrovascular accident</i> | <i>Rheumatoid arthritis</i> |
|-------------------------|--|---------------------------------|-----------------------------|
| Self-care activities    | 27.3                                     | <b>35.7</b>                     | 23.1                        |
| Productivity activities | 9.4                                      | 14.9                            | 15.3                        |
| Leisure activities      | 9.7                                      | <b>20.4</b>                     | 5.2                         |
| Advice/Instruction      | <b>48.4</b>                              | 21.7                            | <b>46.0</b>                 |
| Group therapy           | 0.7                                      | 2.2                             | 1.3                         |
| Splinting               | 1.6                                      | 0.9                             | 5.4                         |
| Other                   | 2.9                                      | <b>4.2</b>                      | <b>3.7</b>                  |
|                         | 100                                      | 100                             | 100                         |

The percentages printed in bold indicate a difference of more than 10%

These differences were not due to age or gender differences between the diagnostic groups: after controlling for age and gender the differences between the diagnostic groups were still significant (likelihood ratio chi-square = 132.32, d.f. = 12,  $p = 0.00$ ). Three treatment goals showed a large difference (> 10%) between the three patient categories. It appeared that, with the PND group, locomotor disabilities were emphasized (compared with the RA group), whereas with the RA group domestic and specific skills were relatively often picked as a treatment goal (compared to the PND group).

At the level of *handicaps* the diagnostic groups differed significantly (chi-square = 28.34, d.f. = 4,  $p = 0.00$ ). These differences were not due to age or gender differences between the three diagnostic groups: after controlling for age and gender the differences between the diagnostic groups were still significant (likelihood ratio chi-square = 45.63, d.f. = 4,  $p = 0.00$ ). A large difference (> 10%) was found for two treatment goals. Table 3 shows that, in the CVA group, handicap in physical independence, and with the PND group handicap in mobility (compared to the CVA group), was chosen relatively often.

#### INTERVENTIONS

With each treatment goal a maximum of two interventions could be chosen with a particular patient. The relationship between the three patient categories and the interventions was significant (chi-square = 318.63, d.f. = 12,  $p = 0.00$ ). These differences were not due to age or gender differences between the three patient groups: after controlling for age and gender the differences between the three patient groups were still significant (likelihood ratio chi-square = 282.82, d.f. = 12,  $p = 0.00$ ). Table 4 shows that large differences were found for three interventions. It appeared that with the CVA group self-care and leisure activities, and with both the PND

**Table 5** Treatment programs chosen by occupational therapists in the three patient groups (percentages)

|             | <i>Progressive neurological diseases</i> | <i>Cerebrovascular accident</i> | <i>Rheumatoid arthritis</i> |
|-------------|--|---------------------------------|-----------------------------|
| Prevention  | 12.8                                     | 3.5                             | <b>20.6</b>                 |
| Development | 11.7                                     | <b>26.4</b>                     | 11.2                        |
| Recovery    | 15.3                                     | <b>35.0</b>                     | 23.1                        |
| Adaptation  | <b>42.5</b>                              | 28.3                            | 33.3                        |
| Maintenance | <b>17.7</b>                              | <b>6.8</b>                      | 11.8                        |
|             | 100                                      | 100                             | 100                         |

The percentages printed in bold indicate a difference of more than 10%.

and RA group advice/instruction, was relatively often chosen as an intervention.

#### TREATMENT PROGRAMMES

With each treatment goal two treatment programmes could be chosen with a particular patient. The relationship between the three patient groups and the chosen programmes was significant (chi-square = 353.94, d.f. = 8,  $p = 0.00$ ). These differences were not due to age or gender differences between the three diagnostic groups: after controlling for age and gender the differences between the diagnostic groups were still significant (likelihood ratio chi-square = 130.62, d.f. = 8,  $p = 0.00$ ). Large differences between the three patient categories and the chosen programmes were found for all programmes (see Table 5). It appeared that with the CVA group the programmes development and recovery were chosen most often, whereas with the PND group the adaptation and maintenance (compared to the CVA group) programme was emphasized. With the RA group the prevention programme was chosen relatively often.

#### LENGTH AND INTENSITY OF TREATMENT

Among the three groups the average time spent on treatment differed. The average time spent on the

treatment of PND and RA patients was 6 h and for the CVA group it was 14 h (chi-square = 61.80, d.f. = 2,  $p = 0.00$ ). It should be noted that not all treatments were completed within the study period. In the RA group 14.9%, in the PND group 24.5% and in the CVA group 48.1% of the treatments were not completed.

There appeared to be significant differences for the groups both for the length and intensity of the treatment (respectively chi-square = 18.34, d.f. = 6,  $p = 0.00$ ; chi-square = 66.04, d.f. = 4,  $p = 0.00$ ). The length of treatment was longer than 10 weeks for most of the CVA patients, whereas for the other two groups treatment was relatively often less than 10 weeks. The intensity of treatment given to the CVA group was relatively often more than twice a week, whereas in the other two groups the intensity was most frequently twice or less a week.

### Discussion

The aim of this article is to describe and compare the outlines of occupational therapy treatment for three patient groups with chronic diseases: PND, CVA and RA.

It can be concluded that there are large differences between the OT treatment of these groups. This means that there exists a specific approach towards PND, CVA and RA patients. At the level of treatment programmes differences were most consistent: with all treatment programmes a large (> 10%) difference was observed.

With the CVA patient group the developmental and recovery programme were chosen most often, whereas with the PND group the adaptation and maintenance programmes were emphasized. With the RA group the prevention programme was chosen relatively often. These findings are globally in line with literature findings. The information provided in literature indicates that with CVA patients the recovery of functions is stimulated,<sup>7,8</sup> with the PND patients the maintenance of functional abilities is aimed at<sup>7-11</sup> and the RA patients prevention is of importance.<sup>7,8,10,12</sup> Our findings confirm and extend the hypothesized relationship between the treatment programmes and the type of disease.

In addition to differences at the level of the treatment programmes, large differences were also found at the level of treatment goals and interventions. These differences can be summarized by means of the following profiles of the three patient groups. With *PND patients* treatment goals focus on locomotor disabilities and on handicap in mobility. With regard to interventions, advice/instruction is emphasized and the programmes adaptation and maintenance are chosen relatively often. A characterization of the treatment of *CVA patients*

shows the following profile. At the level of treatment goals the accent is on handicap in physical independence. With regard to the interventions, self-care and leisure activities are relatively often chosen. The programmes development and recovery are chosen relatively often. The profile for the *RA patients* is characterized by the following aspects. With the treatment goals motor impairments, domestic disabilities and disabilities in specific skills are emphasized. The intervention that is chosen relatively often is advice/instruction and the programme prevention is emphasized.

It should be noted that these profiles consist of only those items that showed a difference of 10% or more. Other interesting differences were observed, but they failed to reach the 10% difference level. One example is the emphasis on handicap in occupational role and splinting in the RA group.

Although each group can be characterized with a specific approach, there also seems to be a resemblance between the PND and RA group on the one hand, as compared to the CVA group on the other hand. In the PND and the RA group there are similarities with regard to the following aspects: gender and living condition of the patients and the emphasis on advice/instruction as an intervention. In both groups the prevention, adaptation and maintenance programmes are emphasized. The average time spent on treatment and the intensity of the treatment also show similarities. It seems that the treatment of these two patient groups is largely based on the concept of *care*. Since recovery is not possible with these two groups the accent of the treatment is on teaching the patients to cope with their remaining abilities, in order to improve their occupational functioning. Assistive devices are valued for helping patients to function as independently as possible, with as little effort as necessary. With the CVA group the emphasis of the treatment is aimed far more at the recovery aspect, a *cure-oriented* approach. This is mainly shown in the choice of programmes and interventions. Interventions focus on activities; therapists aim at recovery and development of these activities, as indicated by the choice of programmes. Patients receive an intensive form of treatment; more than twice a week and largely twice as long as the other two patient groups. This means that the treatment of CVA patients is relatively intensive and more expensive than the treatment of patients in the other two groups.

It can be concluded that different profiles exist for the OT treatment of PND, CVA and RA patients. However, there seems to be a resemblance in several aspects between PND and RA patients. Patients with chronic diseases form a substantial proportion of patients treated

by occupational therapists. Because of the anticipated growth in the number of chronic diseases in the future, it is important for occupational therapists to define their OT profiles with these patients.

Occupational therapists need to further specify their approach with these patient groups<sup>21</sup> and in that way improve communication with other (occupational) therapists, patients and insurance companies. The results of this study can be of help for the further development of profiles for these three patient groups.

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