Note

Survey on the Implementation of Blood and Urine Examinations at Japanese Institutions and Schools for Individuals with Intellectual Disabilities and/or Motor Disabilities in 1998

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Summary

Objectives: Few national surveys have been conducted on the health and nutrition of disabled people in Japan, and as a result, the actual health and nutritional status of this population group has not been clarified. The aim of the present study is to clarify the following hypotheses: nutritional assessment is not carried out at institutions and schools for individuals with intellectual disabilities (ID) and/or motor disabilities (MD), and there are marked differences in implementation rates and assessment methods (i) between institutions and schools and (ii) among the disability categories. Methods: Questionnaires were sent to 1,080 selected institutions and schools for individuals with ID and/or MD. For each disability category, the implementation rate of blood and urine tests (14 items) was calculated separately for the institutions and schools. Results: A total of 826 responses were obtained (response rate: 76.5%); of these, 822 were valid. For all investigated items, implementation rate was significantly higher for the institutions (0–90.3%) when compared to the schools (0–10.2%). The implementation rate of 13 items at institutions for patients with severe intellectual and motor disabilities (4.8–90.3%) was higher than that for institutions for those with intellectual disabilities (0.4–57.0%) or institutions for those with motor disabilities (0–80.0%). The implementation rate of creatinine urinary excretion/24 h and creatinine height index was lower than that for other examinations. Conclusions: Large differences in implementation rates were apparent between the institutions and schools. The implementation rate of blood and urine laboratory examinations varied considerably among the disability categories.

Key Words blood examination, urine examination, nutritional assessment, intellectual disability, motor disability

Few national surveys have been conducted on the health and nutrition of disabled people in Japan, and as a result, the actual health and nutritional status of this population group has not been clarified. In October 2005, the nursing care insurance system was revised to include “nutritional care and management,” a program to provide nutritional management services that are designed uniquely for each individual. “Nutritional care and management” covers the following services: nutritional screening, nutritional assessment, nutritional care plan preparation, conferences, nutritional care plan completion, and nutritional care implementation, monitoring, and assessment. In April 2006, a law was enacted to help disabled persons become independent, and this also included “nutritional care and management.” Hence, there is a need to review healthcare services provided to disabled people. In order to provide appropriate services, it is essential to assess the nutritional status of each person.

In 1998, we conducted a survey at institutions for the disabled (disability categories: intellectual, motor, and severe motor and intellectual) and schools for the disabled (disability categories: intellectual, motor, and invalids) with the following hypothesis: nutritional assessment is not carried out at many facilities, and there are marked differences in implementation rates and assessment methods (i) between institutions and schools and (ii) among the four above-mentioned disability categories (intellectual, motor, severe motor and intellectual, and invalids). The results clarified that there were marked differences in nutritional assessment between institutions and schools for the disabled in Japan, and the overall implementation rate was very low (1). In the future, it will be necessary to continue to ascertain information related to nutritional assessment, and we believe that the data from the present study could be utilized as baseline data. The results of anthropometric measurements have already been reported (1). Here, we report the results of blood and urine laboratory examinations.
Methods

“The List of Institutions for the Mentally Disabled in Japan” (2) and “The Report of a Survey about Schools for Individuals with Intellectual Disabilities (ID) and/or Motor Disabilities (MD) in Japan” (3) were used to select institutions and schools for this study. In January, 1998, questionnaires were sent by mail to 1,080 selected institutions and schools to identify the manner in which nutritional assessment was implemented. The questionnaire was completed by the dietitians working for these facilities.

The questionnaire included the following items: anthropometric measurement, blood and urine laboratory examinations, purposes and methods of measuring energy intake and expenditure, whether nutritional education was provided for the patient’s/student’s parents, and degree of the respondent’s interest in this survey. Thirty-five items for the questionnaire were selected from literature on the nutritional assessment of healthy people (4–6).

Analysis

For each disability category, the implementation rate of blood and urine tests (14 items) was calculated separately for the institutions and schools. Frequency, percentage (%), and 95% confidence interval were calculated. All statistical analyses were performed using SPSS® ver. 12.0 statistical software (SPSS Inc., Chicago, Illinois).

Results

A total of 826 responses were obtained (response rate: 76.5%); of these, 822 were valid (Fig. 1).

We surveyed 231 institutions for persons with ID, 50 institutions for persons with MD, 62 institutions for persons with severe MD and ID, 114 schools for individuals with MD, and 47 schools for invalids. For all investigated items, implementation rate was significantly higher for the institutions when compared to the schools (Tables 1-1 and 1-2). Excluding transferrin (16.1%), the implementation rate of the following 13 items at institutions for patients with severe intellectual and motor disabilities (4.8–90.3%) was higher than that for institutions for those with intellectual disabilities (0.4–57.0%) or institutions for those with motor disabilities (0–80.0%): albumin, total iron binding capacity, hemoglobin, white blood cell count, total lymphocyte count, total cholesterol, triglycerides, high-density lipoprotein, blood sugar, glutamic-oxaloacetic transaminase or glutamic-pyruvic transaminase, blood urea nitrogen, creatinine urinary excretion/24 h, and creatinine height index. The implementation rate of creatinine urinary excretion/24 h (institutions: 1.3–6.5%, and schools: 0%) and creatinine height index (institutions: 0–4.8%, and schools: 0%) was lower than that for other examinations.

Discussion

The present survey investigated the state of nutritional assessment in facilities and schools for the disabled in Japan in 1998. This was the first survey of its kind in Japan; in fact, only a few similar studies have been conducted overseas.

The previous study showed that the implementation rate of general measurements, such as height and body weight, was extremely high for the institutions and schools (85.5–100%). However, the implementation rate for other items was markedly low, and marked differences in implementation rate among the disability categories were noted (1). As was the case with anthropometric measurements, the implementation rate of blood and urine laboratory examinations varied considerably among the disability categories. Furthermore, large differences in implementation rates were apparent between the institutions and schools.

As far as biochemical tests were concerned, implementation rate was high for the institutions, particularly those for persons with severe MD and ID. This might be explained by the fact that, while the school health law mandates the administration of blood and urine laboratory examinations, at institutions for the disabled, this is not the case at schools for the disabled. Moreover, because anemia was diagnosed based on the
Basis of physical signs such as conjunctival pallor, there were marked differences in implementation rate of hematologic testing between the institutions and schools. At institutions for persons with severe motor and intellectual disabilities, since the medical care law stipulates that such individuals should receive in-hospital care (7), blood and urine laboratory examinations can be conducted relatively easily and are therefore performed relatively frequently.

The present survey was not designed to gather detailed information about blood collection, i.e., fasting and timing. If a similar study were to be conducted in the future, this point would need to be addressed. Based on the above findings, it will be necessary to investigate methods to efficiently and properly assess the nutritional state of disabled persons and examine assessment modalities (timing and number of days). In the future, with the introduction of nutritional care and management that has occurred with legislation to help disabled persons become independent, we would anticipate nutritional assessment to be performed at more facilities for the disabled. We plan to continue to monitor institutions and schools for the disabled to ascertain the awareness and usage of nutritional assessment and to identify inhibitory factors.

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Table 1-2. Implementation rates of blood and urine examinations shown by disability type at institutions and schools for individuals with intellectual disabilities and/or motor disabilities.

| Items | Total n=822 | Institutions for individuals with intellectual disabilities and/or motor disabilities (n=343) | Schools for individuals with intellectual disabilities and/or motor disabilities (n=479) |
|-------|-------------|---------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
|       |             | Institutions for individuals with intellectual disabilities and/or motor disabilities (n=343) | Schools for individuals with intellectual disabilities and/or motor disabilities (n=479) |
|       |             | n=231 Motor disabilities | n=50 Severe motor and intellectual disabilities | n=62 Motor disabilities | n=318 Intellectual disabilities | n=114 Motor disabilities | n=47 Invalids |
| TG    | n           | 103 22 35 | 9 1 3 | 45.0 44.0 56.5 | 2.9 0.9 6.4 | (95% C.I.) (38.5–51.4) (30.2–57.8) (44.1–68.8) | (1.0–4.7) (0–2.6) (0–13.4) |
| HDL   | n           | 69 19 26 | 8 0 3 | 30.0 38.0 41.9 | 2.5 0 6.4 | (95% C.I.) (24.1–35.9) (24.5–51.5) (29.7–54.2) | (0.8–4.2) — (0–13.4) |
| BS    | n           | 64 16 30 | 5 0 3 | 27.9 32.0 48.4 | 1.6 0 6.4 | (95% C.I.) (22.1–33.8) (19.1–44.9) (35.9–60.8) | (0.2–2.9) — (0–13.4) |
| GOT or GPT | n | 117 38 56 | 2 0 3 | 50.6 76.0 90.3 | 0.6 0 6.4 | (95% C.I.) (44.2–57.1) (64.2–87.8) (83.0–97.7) | (0–1.5) — (0–13.4) |
| BUN   | n           | 57 33 53 | 0 0 2 | 24.9 66.0 85.5 | 0 0 4.3 | (95% C.I.) (19.3–30.5) (52.9–79.1) (76.7–94.3) | — — (0–10.0) |
| Cr urinary excretion/24 h | n | 3 2 4 | 0 0 0 | 1.3 4.0 6.5 | 0 0 0 | (95% C.I.) (0–2.8) (0–9.4) (0.3–12.6) | — — — |
| CHI   | n           | 1 0 3 | 0 0 0 | 0.4 0 4.8 | 0 0 0 | (95% C.I.) (0–1.3) — (0–10.2) | — — — |

1 Measurement is conducted at least once a year.
2 Some respondents did not respond to some of the question items, and the actual number may differ from that indicated here.
95% C.I.: 95% confidence interval, TG: triglyceride, HDL: high-density lipoprotein, BS: blood sugar, GOT: glutamic-oxaloacetic transaminase, GPT: glutamic-pyruvic transaminase, BUN: blood urea nitrogen, Cr: creatinine, CHI: creatinine height index.

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