THE INFLUENCE OF ENTERAL NUTRITIONAL THERAPY ON PATIENTS’ CONDITION AND LIFE QUALITY

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RUNNING TITLE The Enteral Nutritional Therapy
KEYWORDS life quality, enteral nutritional therapy, survey
WORD COUNT 1783
CONFLICT OF INTERESTS no conflict of interest

ABSTRACT
Diet almost always affects the condition of patients and the quality of their lives. Proper nutrition is extremely important during therapy of all disease entities. For the purpose of this publication a study was conducted which assessed the influence of enteral nutritional therapy (ENT) implementation on overall condition of patients and quality of their lives. Research was based on elaborated survey which assessed number of hospitalizations and medical consultations in patients before and after introduction of ENT. Survey also assessed subjective feels of patients and/or their caregivers connected with ENT. Research showed that ENT is a beneficial therapeutic solution in case of patients suffering from diseases which make normal eating impossible and lead to progressing emaciation of organism. Subjective assessment of life quality also improved.
Proper nutrition, providing all necessary metabolic substrates is extremely important during the therapy of all disease entities. The lack of proper diet almost always negatively affects the condition of treated patients or increases the risk of new disease development in healthy patients thus decreasing the quality of their lives. What is more, many diseases cause weight loss and emaciation of an organism. For example, in cancerous diseases weight loss is reported in 30-80% of patients and significant weight loss (>10%) in about 15% of them [1]. Decrease in body weight and emaciation in patient also has an influence on a social perception – it is seen as a symptom of progressing ‘disease’ [2]. Proper and balanced diet should therefore be an inherent element of any therapy. Unfortunately, it often happens that the treatment process is based purely and simply on pharmacotherapy without appropriate nutrition. Very often patients themselves ignore medical recommendations concerning diet which negatively influences their therapeutic process. In patients without contraindications to oral food intake, conscious, auto and allopsychically oriented the problem of proper nutrition is relatively easy to solve. Skilful talk with the patient and their family and giving appropriate but clear food recommendations may turn out to be a sufficient solution to the problem. Such way out of a situation is cheap from the patient’s point of view and effective. It gives hope for improvement of patients’ condition and quality of their lives. A totally different group of patients are people suffering from diseases which directly or indirectly make oral food intake impossible. Those are people suffering from cancerous diseases, neurodegenerative diseases or patients in severe condition, unconscious, hospitalized at intensive care units. In those patients there is a possibility to introduce dietary treatment e.g., enteral feeding. Such treatment method is relatively expensive, requiring appropriate preparation of a patient, introduction of specialized surgical procedures, purchase of specially prepared food, skilful care of patient and regular (but not often) check-ups in Nutritional Treatment Clinic. The questions are whether it is worth introducing such advanced medical procedures in seriously ill patients, if it is an excessive burden and whether maintaining such treatment will be more problematic from the point of view of a patient and their family. For the purpose of this publication a study was conducted which assessed influence of enteral nutritional therapy implementation on overall condition of patients and quality of their lives.

**ENTERAL NUTRITIONAL THERAPY**

Dietary treatment should be an integral part of every therapeutic process. Skilful introduction of dietary treatment consists of analysis of many parameters and examination results of a patient. Doctors should assess nutritional condition of a patient, estimate need for nutrients, determine mutual relations of nutrients and then monitor the treatment. There are three basic methods of dietary treatment depending on the way of administration of nutrients – oral food intake, enteral feeding and intravenous feeding. Naturally, presented types of feeding may be combined depending on the needs. Enteral or intravenous feeding may be supplemented with oral food intake (e.g. in a case when a patient can take only liquid food in small amounts because of dysphagia). Results of research presented in this publication concern introduction of enteral feeding. In patients, whose cases were analysed, doctors made fixed percutaneous access to digestive tract – to a stomach or initial segments of a small intestine. A group of analyzed patients suffered from severe dysphagia caused by various diseases discussed hereafter [3, 4].

**METHODS**

The research was based on elaborated survey which consisted of two parts. First of them assessed the number of hospitalizations and medical consultations in patients before and after the introduction of ENT. The second part assessed subjective feels of patients and/or their caregivers connected with ENT. Respondents answered questions in which they assessed specific parameters on a scale from 1 to 10. A period of about six months before and after the implementation of dietary treatment was assessed.

The survey was completed on a basis of an interview with patients or their caregivers. Selected people were contacted by phone. Every time the aim was presented, the survey was completed and detailed interview was made.

Analysis involved 59 cases of patients who were under care of Nutritional Treatment Clinic.

Patients were divided into two groups according to age – adults (33 patients) and children (26 patients).

Wilcoxon test, whose assumptions were fulfilled, was used for statistical analysis.

**RESULTS**

In patients involved in research there were following disease entities which determined the necessity of enteral nutritional therapy implementation (in descending order). Among adults: condition after internal multi-organ injury (18%), cancers (15%), condition after stroke (9%), condition after subarachnoid hemorrhage (9%), Alzheimer’s disease (6%), cerebral palsy (6%), myelodysplastic syndrome MDSs (9%), Amyotrophic lateral sclerosis ALS (6%), condition after craniocerebral trauma (6%), sudden cardiac arrest SCA (6%), Crohn’s disease (4%), condition after encephalitis (3%), Duchenne muscular dystrophy (3%). Among children: dysphagia (20%), cerebral palsy (16%), Krabbe disease (8%), condition after brain hypoxia (8%), congenital malformations (8%), esophageal stricture OA (8%), Crohn’s disease (4%), mitochondrial pathologies (4%), postinflammaory esophageal stricture (4%), hydrocephaly (4%), condition after burns of oesophagus (4%), cleft palate (4%), gastroesophageal reflux disease (GERD) (4%). These causes significantly coincide with the results of other research in which oncological causes play major role [5, 6].

One of the most important parameters analysed in research were subjective feelings and opinions of
patients or their caregivers concerning the dietary treatment. After the analysis of all opinions it can be said that the positive ones prevail. Some feelings were surprising for researchers, difficult to predict before the study. All negative opinions were predictable and are a known problem during ENT.

According to patients or their caregivers benefits of enteral feeding are as follows: increase in body weight, improvement of laboratory results, significant decrease in occurrence of such symptoms as stomachaches, diarrheas, constipations; facilitating caregivers’ work, decrease in number of infections, better form, improved mood, and a sense of support from professional team of Nutritional Treatment Clinic. The most frequent drawbacks listed in this group were damage of PEG or PEG clogs.

As was mentioned above, the assessment of the quality of patients’ life on a scale from 1 to 10 before and after the implementation of ENT was taken into account. After a detailed analysis of the outcomes, the following results were obtained: among ‘children’ group average value before introduction of ENT was 4.08 and after it, it was 8.46, whereas among ‘adult’ group before ENT it was 4.22 and after – 8.19.

One of the elements of conducted survey was reference to the following statement: ‘Has the dietary treatment significantly improved the quality of my life/ life of my dependent?’ Among ‘children’ group 80% of respondents agreed with the statement whereas in ‘adult’ group it was 64%.

What is more, research showed a decrease in inpatients and outpatients after the implementation of enteral nutritional therapy, which certainly influenced the decrease in the overall cost of treatment and care of the patients. However, further analysis is needed in order to univocally determine the benefits of this issue. It goes beyond this publication.

DISCUSSION AND CONCLUSIONS

Presented results of research and analysis unequivocally show that the quality of life in patients with serious disease entities and inability to receive full nutrition by eating improved. In both analyzed groups, “adults” and “children”, significant increase in quality of life was reported and many beneficial influences on everyday life of the patients were discovered. Inconveniences which emerged as a result of ENT implementation were ignored or unnoticed. Technical problems were not frequent and were not a major difficulty. Vast majority of patients agreed with the statement: ‘ENT significantly improved the quality of my life/ life of my dependent’. It was noticed that in both study groups not only number of hospitalizations, but also a number of medical consultations significantly decreased. Subjective assessment of life quality also improved. It translates to economics of taking care of a patient. Implementation of enteral nutritional therapy significantly reduced the number of inpatients and outpatients which, in turn, caused a decrease in cost of treatment. Research showed that ENT is a beneficial therapeutic solution in case of patients suffering from diseases which make normal eating impossible and lead to progressing emaciation of organism.

CITE THIS AS
MEDTube Science Dec, 2016; Vol. IV (4), 28 – 31

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TAB. 1. MOST FREQUENT DISEASE ENTITIES DETERMINING THE IMPLEMENTATION OF ENT IN STUDY GROUP.

<table>
<thead>
<tr>
<th>ADULTS</th>
<th>CHILDREN</th>
</tr>
</thead>
<tbody>
<tr>
<td>condition after multiple internal trauma injuries 16%</td>
<td>Appendix 29%</td>
</tr>
<tr>
<td>cancer 15%</td>
<td>abdominal pain 36%</td>
</tr>
<tr>
<td>condition after stroke 9%</td>
<td>Mobide 6%</td>
</tr>
<tr>
<td>condition after surgical hemorragie 9%</td>
<td>Hypopic inherited cystopathy 8%</td>
</tr>
<tr>
<td>Alzheimer’s disease 8%</td>
<td>malformation syndrome 8%</td>
</tr>
<tr>
<td>cerebral palsy 6%</td>
<td>acquired edema, 68%</td>
</tr>
<tr>
<td>motor neuron diseases (MND) 19%</td>
<td>Cushing’s disease 4%</td>
</tr>
<tr>
<td>amyotrophic lateral sclerosis (ALS) 4%</td>
<td>mitochondrial encephalopathy 4%</td>
</tr>
<tr>
<td>condition after cranioform trauma 6%</td>
<td>post-inflammatory esophageal stricture 4%</td>
</tr>
<tr>
<td>surgical cardiac event (SCD) 3%</td>
<td>esophageal dilatation 4%</td>
</tr>
<tr>
<td>Crohn’s disease 4%</td>
<td>neurological central Spina bifida 2-4%</td>
</tr>
<tr>
<td>condition after encephalitis 7%</td>
<td>epidermolysis bullosa 1%</td>
</tr>
<tr>
<td>Duchenne muscular dystrophy (DMD) 5%</td>
<td>cartilage disease (growth factor)</td>
</tr>
<tr>
<td></td>
<td>growth factor deficiency (GFD) 4%</td>
</tr>
</tbody>
</table>
TAB. 2. SUBJECTIVE FEELINGS AND OPINIONS OF PATIENTS OR THEIR CAREGIVERS CONCERNING ENT.

<table>
<thead>
<tr>
<th>BENEFITS</th>
<th>DEFECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased body weight</td>
<td>Painless growth of bone in the ear</td>
</tr>
<tr>
<td>Very good results of laboratory tests</td>
<td>ENT is good, because there is no longer diarrhea, constipation and abdominal pain</td>
</tr>
<tr>
<td>A great convenience for the caregiver</td>
<td>Fever, swelling of the ear</td>
</tr>
<tr>
<td>Less infection</td>
<td>More mobility</td>
</tr>
<tr>
<td>Better mood</td>
<td>Professional team, you can count on</td>
</tr>
</tbody>
</table>

FIG. 1. SUBJECTIVE ASSESSMENT OF LIFE QUALITY IN BOTH ANALYSED GROUPS OF PATIENTS BEFORE AND AFTER THE IMPLEMENTATION OF THE ENT.

FIG. 2. ‘HAS DIETARY TREATMENT SIGNIFICANTLY IMPROVED THE QUALITY OF MY LIFE/ LIFE OF MY DEPENDENT?’ – GROUP ‘ADULTS’.

FIG. 3. ‘HAS DIETARY TREATMENT SIGNIFICANTLY IMPROVED THE QUALITY OF MY LIFE/ LIFE OF MY DEPENDENT?’ – GROUP ‘CHILDREN’.

My child’s quality of life improved significantly after the Implementation of ENT.