



The role of complementary medicine in the multimodal management concept for children with behavioural and developmental disorders.

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INTRODUCTION AND BACKGROUND:

The multimodal management concept of our «Centre for Child Development and Pediatric Neurorehabilitation of the Wildermeth Trust » (C.D.N.) consists of a multistep, holistic, patient-centred, multidisciplinary, and interprofessional approach. It includes psycho-educational and pedagogical interventions, integrative and complementary medicine, specific therapies (e.g. neurofeedback, neuropsychological training, psychotherapy, occupational therapy) and, if necessary, specific medication.

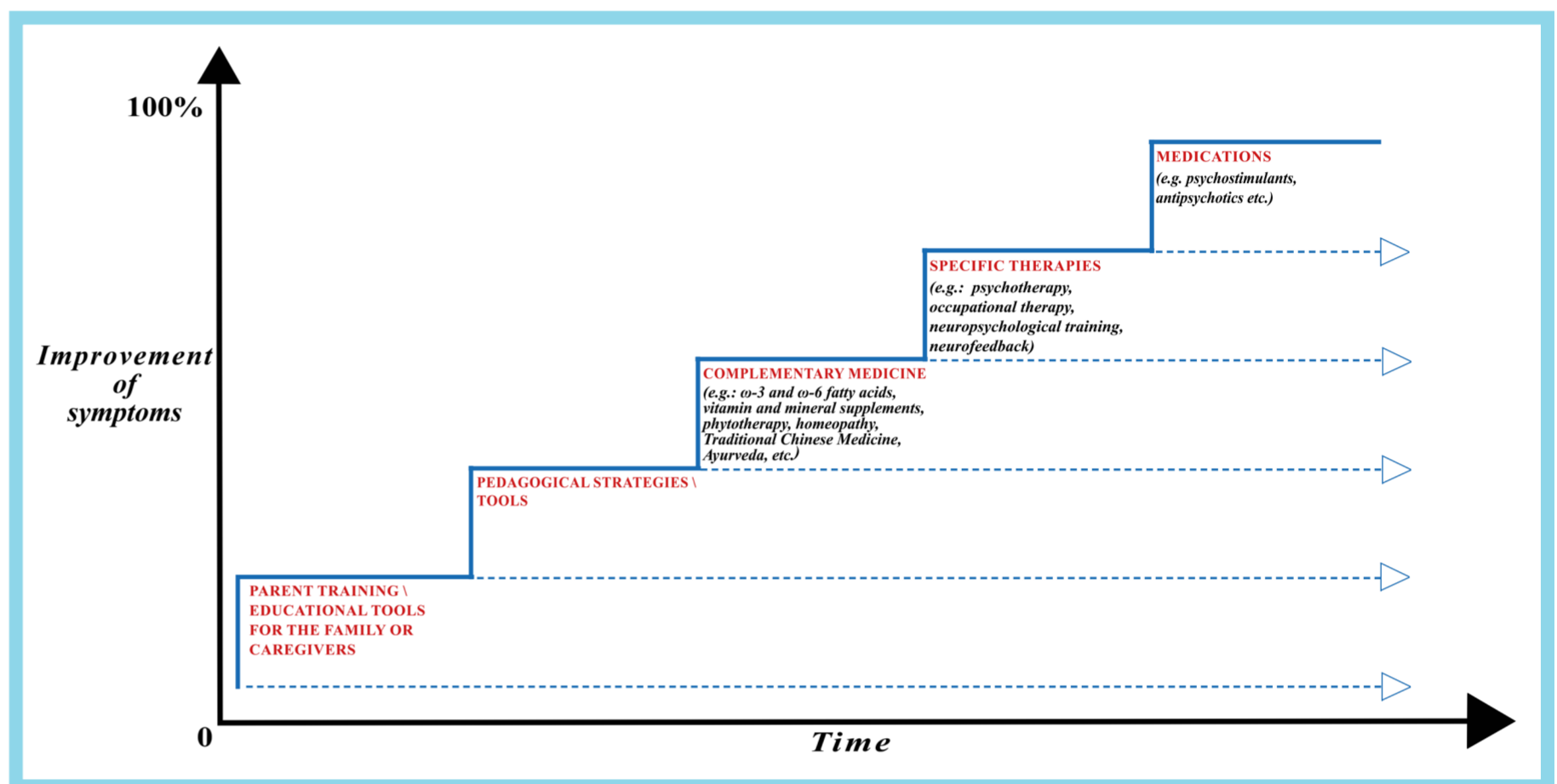
Our management concept is applied in children with different behavioural and developmental disorders, such as Attention-Deficit/Hyperactivity Disorder (ADHD), Autism Spectrum Disorder (ASD), Intellectual Disability (ID) and other specific neurodevelopmental disorders such as developmental coordination disorder (DCD). These disorders can sometimes co-occur. The overlapping symptomatology includes above all attention deficit and hyperactivity/impulsivity, defective social interaction and integration, deficits in emotionality and executive functioning, as well as academic and familial problems.

With patients presenting the above-mentioned symptoms, we apply our concept (see tab.1) from the first intervention on, based on main symptoms, child's and parents' level of suffering and results of diagnostic procedures (e.g. blood test, EEG, neuropsychological tests).

Several interventions (steps) can be introduced and carried on at the same time to provide a synergistic therapeutic effect. Regular re-evaluations of symptoms allow to estimate if additional measures (new steps) should be introduced and supplement the interventions already applied.

Complementary medicine (CM) is an important step in our multimodal management concept and it is itself made up of different therapeutic approaches including dietary interventions, phytotherapy, homeopathy, **Traditional Chinese Medicine** (like acupuncture), **Ayurveda** etc. (Tab. 2).

Within the spectrum of **phytotherapy**, Ginkgo biloba, Rhodiola rosea and Ginseng were most frequently applied. According to literature (a), these treatments show positive effects on cognitive functions such as attention, accuracy, memory and executive function. The side effects are found to be rare.



Tab.1: Steps of our multimodal management concept for children with behavioural and developmental disorders.

PATIENTS AND METHODS

All patients with neurodevelopmental disorders mentioned above receive an individually adjusted and symptoms oriented complementary treatment in accordance with their parents' attitudes and beliefs.

At the beginning of treatment and every three month thereafter, the multidisciplinary team (pediatrician, psychologist, special educator) and the parents evaluated the children's behaviour using qualitative and semi-quantitative questionnaire and in some cases, neuropsychological tests are repeated. Rating scales for hyperactivity and stereotypical behaviour (Aberrant Behaviour Checklist, ABC) and autism behaviour checklist (from Krug, Arick and Almond) were the most frequently used questionnaires.

The first step in the complementary medicine is composed of **dietary interventions** including dietary adjustments and dietary supplementation. Depending laboratory findings, vitamin and mineral supplements (Zinc, Magnesium, Iron, Vit. D) are prescribed. In addition, the intake of 1.5 mg/day of omega-3 fatty acids (EPA, DHA 3:1) and 0.4 mg/day of omega-6 fatty acids is recommended for at least three months. **Dietary elimination** of synthetic food additives, sensitizing food allergens and/or sugar is also suggested, as well as a individual adjusted ayurvedic diet.

In addition (second step), the family can consult a specialist in homeopathy, in Traditional Chinese Medicine, Ayurveda etc.

If the symptoms are not sufficiently improved after these interventions, a phytotherapy based on Ginkgo biloba or on Rhodiola rosea or on Ginseng may be introduced as further complementary treatment step.

Patients can carry on different complementary treatments in parallel as part of the multimodal treatment.

Complementary medicine in neurodevelopmental disorders (e.g. ADHD, ASD, ID, DCD)

Dietary interventions

Dietary supplementation (e.g. vitamins, minerals, omega-3 and omega-6 fatty acids, amino acids)

Dietary strategies (e.g.: - elimination of synthetic food additives, sensitizing food allergens and/or sugar - specific Ayurvedic diet)

Homeopathy, Ayurveda, Traditional Chinese Medicine,

Phytotherapy (e.g. Ginkgo biloba, Rhodiola rosea, Ginseng)

Tab.2: Complementary medicine in multimodal management concept for children with behavioural and developmental disorders.

FINDINGS

Ca. 80% of patients show improvement of behavioural, emotional as well as ADHD-related symptoms under individual complementary treatment, with no significant side effects observed. Ca. 20% show insufficient effects under complementary treatment and receive additional medication such as psychostimulants, atomoxetine or risperidone as final step in our multimodal management concept. In these cases, we generally observe an excellent medication compliance. In our clinical experience the combination of complementary and pharmacological treatments brings out a better control of the symptomatology compared to the pharmacological treatment alone.

CONCLUSION

Patient-centred complementary treatment in a multimodal management concept for children with behavioural and developmental disorders results in a significant reduction of related symptoms and in an improvement of general health and quality of life in our patients. Further scientific and clinical research and specific training of health care professionals can lead to a more effective implementation of integrative treatment as well as a lower risk and lower cost care for patients with neuro-developmental disorders.

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