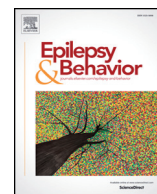




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## Letter to the Editor

**Comment on: Ketogenic diet therapy provision in the COVID-19 pandemic: Dual-center experience and recommendations**


To the Editor,

We appreciated Kossoff et al.'s recent paper [1] on ketogenic diet therapy provision in the COVID-19 pandemic as also in our experience, a substantial modification of the neurological and nutritional assistance of patients with epilepsy undergoing ketogenic diet therapies (KDTs) became necessary. Our hospitalization and care center is located in Lombardy, the Italian region most affected by the COVID-19 pandemic, and our center is one of the national reference centers for the treatment of epilepsy with KDTs. We follow both pediatric and adult patients with epilepsy under KDT, coming from all over the country.

Ketogenic diet therapies require constant nutritional monitoring over time both to ensure their effectiveness and to reduce the likelihood of short- and long-term adverse effects [2]. The recommendations of the International Ketogenic Diet Study Group about optimal clinical management reported that a multidisciplinary team—including pediatric neurologist, nutritionist, dietitian, and pediatrician—should closely monitor patients to maximize the outcome of the therapy [2]. Based on our experience, careful long-term monitoring of dietary and clinical parameters is essential to support compliance and to investigate possible side effects to promptly deal with them.

We have been studying telemedicine in ketogenic diet treatment since 2018 [3]. Recently, we reported that constant monitoring via email, especially during the first months of the ketogenic diet, could actually lead to greater patients' compliance and to a consequent positive effect on the normal growth process [4]. A careful monitoring appeared necessary even during the COVID-19 lockdown, despite the impossibility of providing routine outpatient visits and hospitalization as a strategy of virus spread containment adopted by the Italian Government. Parents and patients thus have showed major concerns both regarding the potential risks of COVID-19 exposure in a hospital setting and related to the altered contact with referring epileptologist and nutritionist. Therefore, it has been necessary to adjust our usual healthcare assistance introducing teleassistance and visits in video call, as suggested in the recent consensus statement for keeping people with epilepsy safe during the COVID-19 pandemic [5].

Following this new strategy, in April, we contacted all our patients undergoing classic ketogenic diet (cKD) or modified Atkins diet (MAD), and we set up a follow-up video visit with our keto-team (child neurologist, nutritionist, and dietitians). Almost 20 visits were scheduled from May to July 2020: each visit had a duration of approximately 60 min. Further visits for KD introduction or suspension have also been conducted with

the same modalities and video conferencing platforms; otherwise in few cases, patients with severe encephalopathy were hospitalized, and KD was introduced in the hospital setting.

Parents were emailed two weeks in advance and were asked to provide the following information: 1) actual height and weight, 2) updated list of medications and supplements, 3) blood chemistry and abdominal ultrasound (when feasible), 4) food diary, and 5) ketonemia monitoring. During each visit, the neurologist, nutritionist, and dietitian discussed together with the patient and caregivers about patient care and then planned dietary and medical changes, arranging further tests if needed. During the lockdown period, the only tests that patients were unable to perform were indirect calorimetry, bone mineral densitometry, and bioelectrical impedance. Sometimes, obtaining blood tests turned out to be difficult, and the measurements of the patients' height and weight were imprecise. As predictable and observed in other adolescent and pediatric patients, even in this small subset of patients undergoing cKD, emotional and behavioral problems emerged during such a period of reduced social connections.

As far as cKD compliance during a subverted clinical routine, no major problems emerged except for one patient with a well-known history of poor compliance, who had more difficulties in following the diet by spending more time at home. On the contrary, a marked improvement of compliance was observed for one young adult patient undergoing MAD, who found it easier to adhere to the dietary regimen because of reduced meals out of home. Despite the reduction in physical activity that essentially affected all patients, no significant variation of ketonemia levels nor increase in weight parameters was registered.

Just few patients of certain Italian regions reported some difficulties in finding supplements and KD products during lockdown, with prompt resolution of such an inconvenience from the end of May. Thanks to the help of the Italian association GLUT1-DS ONLUS and some pharmaceutical companies, the "Covid-Kit" was created containing the ketogenic products most used by patients.

Patients' feedback regarding this follow-up via telemedicine was positive, and most families were pleased for not having to travel and risk their health. Nevertheless, there were a number of technical challenges related to poor internet connections and inability to connect to the virtual platform.

We definitely agree with Kossoff et al. [1] that maintenance of patients on KDTs is also possible during a pandemic period, and we suggest to offer to patients and their families the opportunity to perform a follow-up visit in teleassistance to provide clinical and treatment monitoring and to alleviate possible concerns as a bridge to the normal face-to-face clinic follow-up, which should remain the preferable practice when feasible.

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