

Nourishment management in patients with multiple system atrophy receiving chronic artificial respiration management: A case report

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Case report

The patient was a 71-year-old man. Gait disturbance occurred in April, 1998, followed by failure of muscular coordination. He received a diagnosis of multiple system atrophy. He was hospitalized in Tokushima National Hospital in November, 2002. A tracheostomy was carried out in March, 2007, and artificial respiration management was started in October, 2007. A gastric fistula was constructed in April, 2008. The physical examination becomes able to see, but there is no declaration of intention. The patient was bedridden, and his limbs exhibited tremors. There was no active movement. His weight was 55.2 kg in November, 2002 on admission. After giving enteral feeding of 900 kcal/day, the weight increased gradually. In April, 2010, the weight was 57.4 kg. His height was 164 cm. The BMI was 21.3, and the basal metabolic rate was 1307 kcal. An abdominal CT showed a fatty liver. Fat deposition was remarkable in the abdominal cavity. Nourishment was reduced to 800 kcal/day in April, but there was no change in weight by July, at 57.8 kg. After reducing nourishment to 700 kcal/day from September, the weight decreased.

Discussion

Ugaoka et al [1]. investigated the nutritional states of 28 patients with multiple system atrophy (MSA) by measuring the body mass

index (BMI), arm muscle circumference (% AMC) and triceps skin fold thickness (% TSF). They also analyzed retrospectively chronological changes of nutritional status in 13 MSA patients surviving more than 10 years. The BMI and % AMC were significantly reduced in patients having tube feeding compared with patients who had oral intake, whereas the % TSF was increased in some patients with tube feeding. Their chronological study demonstrated that patients at the stage of respiratory or swallowing deterioration showed marked malnutrition, whereas patients during the advanced, but stable stages with tracheostomy and gastrostomy showed much fat accumulation even with low calorie intake of less than 1,000 kcal/day. Their study found that the daily amount of calorie intake should be sufficient during respiratory or swallowing deterioration, but it should be restricted at the advanced stable stage to avoid fat accumulation.

The BMI of this patient was 18.9 ± 4.5. % TSF and % AMC were 104.3 ± 69.2% and 89.2 ± 13.2, respectively. These findings show that no consumption of body fat occurred, but there was a nutritional disorder affecting muscle. The BMI and % AMC decreased and % TSF increased after introduction of the PEG. After the PEG introduction, there was weight loss due to the nutritional disorder of the muscle protein, but the body fat seemed to accumulate. The BMI decreased before the tube feeding introduction, and it was thought that the muscle protein nutritional disorder

progressed further at this time.

After the tube feeding introduction, %AMC and %TSF decreased. The BMI increased, but the muscle protein nutritional disorder did not recover. It was thought that adiposity had occurred. Even though dietary intake was improved by the introduction of tube feeding, it was found that the muscle protein nutritional disorder did not recover. It is desirable to prevent the onset of nutritional disorders by early introduction of tube feeding.

References

1. Nagaoka U, Shimizu T, Matsukura T, Takeda M. Nutritional problems in multiple system atrophy—the necessity of early tube feeding and caloric restriction at the advanced stage. *Clin Neurol* 2010;50:141-146