



SEVERE CREATINE KINASE ELEVATION DURING GROWTH HORMONE TREATMENT AND RELATED FACTORS

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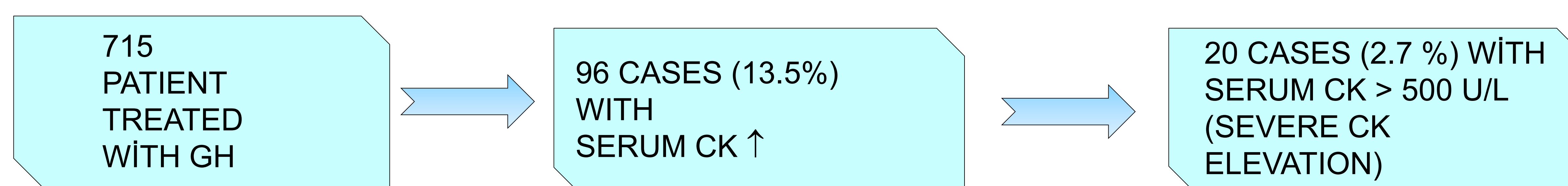
INTRODUCTION

Growth hormone (GH) treatment involving repeated subcutaneous injections is considered to be safe for many years. However, effects of this therapy on muscle are not so clear. There are few reports about serum creatine kinase (CK) increase due to GH treatment in the literature. It is also speculated that, this elevation can be attributed to m-cresol used as a preservative in some of the GH preparations. We aimed to investigate the changes in serum CK levels during GH treatment.

MATERIAL- METHODS

We retrospectively evaluated the patients who were treated with GH in our pediatric endocrinology clinic. The clinical data of 20 children with severe CK elevation (> 500 IU/L) were analyzed. Age, gender, height, growth velocity, diagnosis, accompanying diseases, drug usage, needle length(mm), GH formulation used were all recorded. The children who had the history of prolonged exercise, any other drug usage except GH, accompanying infection or abnormal thyroid function tests were excluded.

RESULTS



CLINICAL CHARACTERISTICS OF THE PATIENTS WITH SEVERE CK ELEVATION

GENDER	16 MALE , 4 FEMALE
AGE (YEAR)	11.5± 3.4
DIAGNOSIS	10- ISOLATED GH DEFİCİENCY 7- PANHYPOPITUITARISM 2- BIOİNACTIVE GROWTH HORMONE 1- TURNER SYNDROME
SERUM CK LEVEL (U/L)	828.9 ± 400.1 (504 - 2246)
THE TIME ELAPSED BETWEEN THE BEGINNING OF TREATMENT AND CK INCREASE (MONTH)	20.5 ± 12.8 (3 - 48)
PREPARATIONS CONTAINING M-CRESOL	8 CASES (+)

*** No significant differences according to age, gender, height SDS, growth velocity, diagnosis, length of the needle used and m-cresol content in the formulation ($P = 0.937$, $P = 0.508$, $P = 0.396$, $P = 0.463$, $P = 0.865$, $P = 0.500$ and $P = 0.624$ respectively).

***There were not any medical history of accompanying disease/ infection or any other drug usage in the period of CK rise in our study group. All of our cases were also euthyroid during the study period.

***There was not any symptom like muscle ache in any of our cases.

***On follow up of these patients, serum CK levels decreased again in a period of 1.7 ± 2.3 weeks after interruption of the therapy. None of them had severe CK elevation after restarting treatment. Although, CK levels remained within the upper limits of the normal range in half of the cases.

CONCLUSION

Severe CK elevation was found in 2.7 % of the patients on GH treatment. The effects of GH on muscle should be evaluated during follow up. Accidental intramuscular (IM) injections may also induce CK rise due to muscle injury. We suggest that, the possibility of IM injections must be kept in mind and education of the patient should be repeated to avoid it.

