Pericardial Effusion in a Teenaged Type 1 Diabetic Patient after Insulin Therapy

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Edema is a rare complication of insulin therapy[1]. According to literature, only ten cases of insulin edema in children and adolescents have been reported.

We present a 14 year old girl, a new case of diabetes mellitus type one, who developed generalized edema and pericardial effusion a few days after initiation of insulin therapy. Other causes of edema were ruled out. Her generalized edema and pericardial effusion improved spontaneously after about 20 days.

Pericardial effusion can be associated with generalized edema as a complication of insulin therapy. It does not need any treatment except for supportive therapy.

In our patient other causes of edema were ruled out.

Edema as a rare complication of insulin has been detected specially in new cases of diabetes mellitus type I and also in malnourished diabetic patients[2-3]. As stated before, insulin edema (IE) is usually a self limiting process and does not need any treatment, but it should be distinguished from other causes of edema including liver, kidney and heart problems. Therefore, it is necessary for physicians to know about this rare complication of insulin therapy. According to our review of the literature, none of reported cases of insulin edema in children and adolescents were associated with pericardial effusion[4]. In this study, we describe a new case of insulin edema that was associated with pericardial effusion.

The patient was a new case of diabetes mellitus type I, who presented with diabetic ketoacidosis (DKA). At first, she was treated in intensive care unit due to severity of acidosis (pH=6.95, HCO3=3 mEq/l, pCO2=14 mmHg ) and decreased level of consciousness.

About two days after improvement of DKA, the patient developed pitting edema of the upper and lower extremities that was aggravated gradually. After one week, in the follow up, the edema of both lower extremities was extended to the thighs and edema of the upper extremities to the forearms. Her general condition was good. She had no periorbital edema. Physical examination of the chest, heart and abdomen was completely normal. Other causes of edema were ruled out by appropriate paraclinical studies. She had normal CBC, blood urea, creatinine, sodium, potassium, albumin, liver function tests and electrocardiography.

Echocardiography revealed mild pericardial effusion. Because she had not any cardiovascular manifestation, no treatment was advised except observation. 20 days later in the follow-up, the edema was improved completely and the second echocardiography done by the same cardiologist did not show any signs of pericardial effusion. She had not received any medication in that period except for insulin.

Generalized edema is a rare complication of insulin therapy. Although IE has been known for a long time, its pathogenesis remains unclear[4].

According to our search, from ten cases of IE reported in children and adolescents four cases were new cases of diabetes mellitus type I and the other six cases were poor controlled known cases whose insulin dosages were increased recently[3]. Three out of ten cases received a diuretic as the management of IE, but IE in the other seven cases was self-limited[3].

In adults, a few cases of pleural effusion and ascites have been reported[5], but none of the patients under 16 years of age had pleural or pericardial effusion. Our patient is the only case of childhood insulin-induced pericardial effusion being reported. We did not find any other case of edema and pericardial effusion in our patient. As in most of the previously reported cases, both generalized edema and pericardial effusion were self-limited and did not need any treatment.

Key words: Insulin; Edema; Diabetes; Pericardium; Effusion

References


