Hereditary angioedema with normal C4 level

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Abstract Although hereditary angioedema (HAE) accounts for only a small fraction of all cases of angioedema, it is the most common genetically linked clinical disorder caused by the deficiency of a protein associated with complement activation. HAE is an autosomal dominant trait and characterized by deficient activity of C1-esterase inhibitor (C1-INH). There are a few patients, however, with no family history in which a mode of transmission can not be demonstrated. Laboratory evaluation of these patients demonstrates markedly decreased C4 levels[1] even when patients are free of symptoms, with virtually undetectable levels during exacerbations. A C4 determination serves as an effective, relatively inexpensive screening test to rule out HAE.[2] We report an unusual case of HAE with a normal C4 level.

Index key words : Hereditary angioedema , C4 level, C1-esterase inhibitor

บทคัดย่อ

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Hereditary angioedema (HAE) แม้พบได้น้อยในกลุ่ม angioedema แต่ในกลุ่มของโรคที่มีความบกพร่องของโปรตีนที่เกี่ยวกับ complement แล้วพบว่าเป็นสาเหตุสำคัญ มีการถ่ายทอดแบบ autosomal dominant trait พบระดับ C1-esterase inhibitor ลดลง น้อยรายที่จะไม่มีประวัติในครอบครัวเป็นโรคนี้ ระดับ C4 ต่ำ แม้ขณะผู้ป่วยไม่มีอาการ การตรวจกรองหาระดับ C4 นั้น ทำได้ง่าย ในรายงานนี้ได้นำเสนอผู้ป่วย HAE ที่มีระดับ C4 อยู่ในเกณฑ์ปกติ ซึ่งลักษณะนี้พบได้น้อยราย

(MJS 2000 ; 1 : 35 – 37)

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edema of the bowel wall. They may cause anorexia, dull aching of the abdomen, vomiting and severe crampy abdominal pain.[9]

Because HAE is potentially life-threatening but treatable, early diagnosis is crucial. Diagnosis is established by the demonstration of low antigenic or functional levels of C1-INH. Such patients usually have normal levels of C1, low level of C4 and normal levels of C3. It is usually recommended that C4 be measured as a simple screening test of HAE and then the diagnosis confirmed by measurement of C1-INH levels.[10,11] However, rare patients with HAE may have a normal C4 concentration when they are asymptomatic.[12] In this patient, her C4 level ordered as a screening test when she first seen and asymptomatic was normal. Although the diagnosis of HAE is believed to be unlikely, C1-INH quantitative and functional assays were ordered because of her history of recurrent non-pruritic angioedema. C1-INH antigenic level was normal but her C1-INH functional activity was low. A C1Q level was subsequently shown to be normal, confirming the hereditary form of C1-inhibitor deficiency. Therefore this is an example of an unusual presentation of a patient with HAE with a normal C4 level while asymptomatic and thus substantiates the importance of assaying C1-INH functional activity in this disease. It is hoped that this report may alert physicians to the possibility of the existence of the disease in patients with appropriate histories.

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