

中文題目：使用安室律注射劑(adenosine)後出現腫瘤溶解症候群的急性急性淋巴性白血病案例

英文題目：A case of acute lymphoblastic leukemia with tumor lysis syndrome after adenosine injection

作者：杜政勳¹ 蕭惠樺^{1,2}

服務單位：高雄醫學大學附設中和紀念醫院¹內科部²血液腫瘤內科

Introduction

Tumor lysis syndrome(TLS) is an oncology emergency and may results in a life threatening due to severe electrolyte imbalance with hyperkalemia, hyperphosphatemia, hypocalcemia, and hyperuricemia. TLS usually occurs after cytotoxic therapy in patients with large tumor burden, such as high grade lymphoma and acute lymphoblastic leukemia(ALL). We report a case of ALL who encounter TLS without cytotoxic therapy after adenosine use.

Case presentation

20-year-old male is a case of acute T lymphoblastic leukemia post treatment and presented to emergent department(ED) for epigastralgia. At ED, initial vitals are BP 122/95 mmHg, HR 128 bpm, RR 20 cpm and BT 36.9 ° C. However, irritable mood and tachycardia up to 170-180 bpm with regular narrow QRS complex were noted. Then adenosine was given for suspect paroxysmal supraventricular tachycardia(PSVT). The laboratory test revealed leukocytosis with blastocytosis (WBC count: 254160/uL, blast 71%), normocytic anemia (Hb 7.7 g/dL, MCV 92.8%), thrombocytopenia (Platelet count: 40000/uL) and serum creatinine was 1.02 mg/dL. However, dyspnea and decreased urine output were noted after admission. The laboratory test revealed deterioration of renal function (SCr: from 1.02 to 4.97 mg/dL) and hyperuricemia (uric acid: 29.4 mg/dL), hyperphosphatemia (P: 8 mg/dL) and hypocalcemia(Ca⁺⁺: 3 mg/dL) were noted after admission. Decreased WBC count and blast count (WBC: from 226000/uL to 11710/uL, blast: 86% to 8%) were also noted in the same time. Therefore, tumor lysis syndrome with severe hyperuricemia, hypocalcemia and hyperphosphatemia and acute kidney injury with metabolic acidosis were impressed and then urgent hemodialysis was arranged. After that, improvement of renal function (SCr: from 4.97 to 1.84 mg/dL) was noted and serum uric acid and calcium level also return to normal range. Besides, leukocytosis (WBC: 238860/uL) with blastocytosis(blast: 76.5 %) was also noted. During this period, there was no cytotoxic therapy for ALL.

Discussion

Although acute lymphoblastic leukemia(ALL) is high tumor is large tumor burden, TLS occurs after cytotoxic therapy clinically. According to this case, we found this case encounter tumor lysis syndrome within 4-5 days without cytotoxic therapy for ALL. Therefore, we review drug history at ED and we found only additional adenosine injection, compared to usual medication. Adenosine is an antiarrhythmic agent and rapid intravenous injection is used to paroxysmal supraventricular tachycardia. Adenosine appears to induce cell death by apoptosis and the mechanism is attributed to growth inhibition and cytotoxicity. The Pharmacology study revealed adenosine-induced cytotoxicity and we assumed that adenosine played a key role in tumor lysis in our case.