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Effect of Acetaminophen on Glucose-6-Phosphate Dehydrogenase, Mahidol Variant[1]

To the Editor,

Although acetaminophen (paracetamol) is considered a safe drug for the Mediterranean type of glucose-6-phosphate dehydrogenase (G6PD) deficiency [1], a case of moderately severe hemolytic anemia resulting from ingestion of this drug has been recently reported [2].

To confirm the acetaminophen idiosyncrasy in a G6PD-deficient subject we wish to report the effect of this drug in G6PD deficiency, Mahidol variant. This is the most common variant in Thai population [3], albeit usually asymptomatic, sometimes presenting an adverse effect after the consumption of certain drugs or chemicals [4]. The experiment was performed in vivo with the subject's consent, labelling G6PD-deficient Mahidol variant erythrocytes with ^{51}Cr using standard method C (ACD/ascorbic acid method) recommended by ICSH [5]. 10 ml of labelled erythrocytes were then transfused into a ABO-compatible normal subject. After taking blood samples for 6 consecutive days, a dose of 2 tablets (1,000 mg) of paracetamol was administered orally 3 times a day for a period of 2 weeks during which the blood samples were taken 2–3 times a week for radioactive mea-

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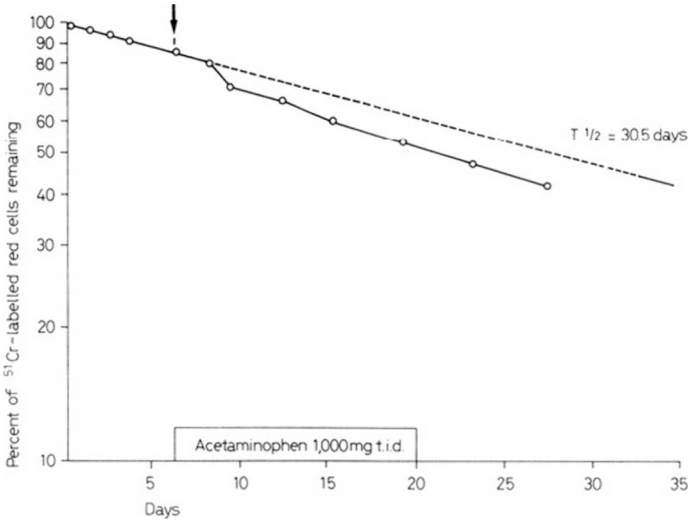

Fig. 1. The figure shows the survival curve of ^{51}Cr-labelled G6PD Mahidol red cells in a normal subject. The arrow indicates the administration of acetaminophen after which the drop of the ^{51}Cr $T_{1/2}$ from the expected normal curve of 30.5 days (dotted line) is clearly demonstrated.

surement. After withdrawal of the drug the experiment was performed for another week.

The result is shown in figure 1. After 3 days of paracetamol administration, the drop of ^{51}Cr radioactivity in the circulation was conspicuous and this continued further during 2 weeks of paracetamol administration, resulting in a shortening of the $T^{1}/_{2}$ from 30.5 (normal) to 20 days.

During the experiment the subject was symptomless and no abnormality was detected. It should be emphasized that this result has shown the effect in a normal subject who had only a small amount of G6PD-deficient erythrocytes. It is likely that in G6PD-deficient subjects almost all of whose erythrocytes are G6PD-deficient, the result would be more remarkable. Therefore, paracetamol used in G6PD-deficient subjects, Mahidol variant, should be used prudently although the hemolysis is not as severe as that caused by other potent hemolytic drugs such as primaquine.

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