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THE INCIDENCE OF SOUTHERN CHINESE GLUCOSE-6-PHOSPHATE DEHYDROGENASE MUTATIONS IN HONG KONG AND TAIWAN

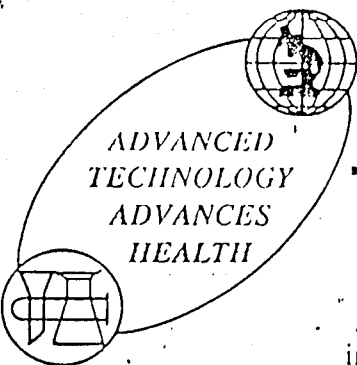
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Recently, the mutations of nucleotide 1388(G→A), 1376(G→T), 1024(C→T), 493(A→G), 487(G→A), and 95(A→G) have been reported to account for approximately 80-90% of Glucose-6-phosphate dehydrogenase(G6PD) mutant alleles in Taiwan. As the majority of the Hong Kong population are southern Chinese, we were interested in finding out the incidence of those southern Chinese G6PD mutations in Hong Kong. The cord blood screening samples of 229 male G6PD deficient Chinese neonates were collected and spotted on filter paper (Toyo Roshi Kaisha Ltd., Tokyo) at the Hong Kong Neonatal Screening Center. The blood samples were air-dried and mailed to Veterans General Hospital-Taipei for analysis. For comparison, 217 dried blood neonatal screening samples of confirmed male G6PD deficient patients in Taiwan were collected and tested. A non-radioactive method analyzing the restriction fragments of DNA amplified directly from dried blood spot by polymerase chain reaction was used to detect the six southern Chinese G6PD mutations. The following results were found:

Subjects (ethnic group)	Sample No.	Type of G6PD Mutation						
		1388	1376	1024	493	487	95	Unknown
Hong Kong								
Cantonese	197	65	60	9	0	0	16	47
Hokkienese	5	1	1	2	0	0	1	0
Hakkanese	5	0	4	0	0	0	1	0
Others	7	1	2	1	0	1	0	2
Unknown	15	6	7	0	0	0	1	1
Total	229	73	74	12	0	1	19	50
		(31.9%)	(32.4%)	(5.2%)		(0.5%)	(8.3%)	(21.8%)
Taiwan								
Cantonese	2	1	0	0	0	0	0	1
Hokkienese	137	20	69	7	10	1	12	18
Hakkanese	22	4	6	1	2	0	3	6
Others	5	1	0	1	1	0	1	1
Unknown	51	9	26	1	1	0	1	13
Total	217	35	101	10	14	1	17	39
		(16.1%)	(46.5%)	(4.6%)	(6.5%)	(0.5%)	(7.8%)	(18.0%)

The incidence of 1024, 487, and 95 mutations in these two Chinese populations were similar. There were apparent differences between the incidence of 1388 and 1376 mutations in Hong Kong and in Taiwan that may be caused by the higher proportion of Cantonese, who have higher incident rate of 1388, in Hong Kong population. No 493 mutation was found in Hong Kong, but 6.5% of the G6PD deficiency in Taiwan were caused by 493 mutation. The data indicated that 1388, 1376, 1024 and 95 mutations may account for approximately 80% of G6PD mutant alleles in Hong Kong and the 493 mutation may be a specific G6PD mutant allele that can only be detected in the population of Taiwan.



82
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