External Quality Assurance Program for Determination of Erythrocyte Glucose-6-Phosphate Dehydrogenase Activity in Taiwan

S.-H. Chiang*[1], M.-H. Chen[1], S.-J.Wu[1], K.-J. Hsiao[1,2]

Dept. of Medical Rescarch[1], Veterans General Hospital-Taipei; Institute of Genetics[2], National Yang-Ming Medical Univcrsity, Tapei, R.O.C.

The nationwide neonatal screening of G6PD deficiency in Taiwan was started on July 1, 1987, and a follow-up system comprising of seventeen referral hospitals including outlying islands, were organized for confirmatory test, medical care and genetic counseling. To assess the reliability of the confirmatory test, an external quality assurance (QA) program for G6PD assay was developed. Workshops of G6PD assay were held for the referral hospitals to standardized the G6PD quantitative assay procedure and methods for calibration of spectrophotometer and micropipette. The lyophilized quality control matcrials of different activities of G6PD were prepared from red blood cells. Periodically (1-2 month), 3 or 5 specimens kept in dry ice were sent to each of the referral hospitals by speed post delivery. The external quality assurance results were evaluated and compared to the reference values determined by our laboratory. For the participants with system errors, troubleshooting proceeded either by phoning or visit the laboratories. There are 21 laboratories participating in the quality assurance program at the present time. From January 1988 to June 1994, 61 quality assurance services were performed. 150 (14.5%) abnormal QA results were found, which were attributed to clerk (16/150, 10.7%), experimental (36/150, 24%), and instrumental errors (70/150, 46.7%). Most of the experimental and instrumental errors were found in laboratories without restrictively executed internal QA. The external quality assurance program had provided a good system for monitoring the pereformance of the referral hospitals and might be a guidance for the referral hospitals to correct the errors.

Journal of Biomedical & Laboratory Sciences. 1995;7 :A16.

158