

# Relationship of glucose-6-phosphate dehydrogenase deficiency and neonatal sepsis: a single-center investigation on the major cause of neonatal morbidity and mortality

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**Introduction:** Neonatal sepsis is a serious disease with distinct clinical and laboratory findings. G6PD deficiency is known as the most common human erythrocyte-enzyme deficiency. This study was designed to investigate the relationship between G6PD deficiency and neonatal sepsis, since it is a major cause of neonatal morbidity and mortality.

**Methods:** A cross-sectional case-control study was designed and performed on 50 neonates who had been admitted to the neonatal intensive-care unit and diagnosed with sepsis and 50 normal neonate controls. Quantitative G6PD-enzyme activity was assessed in the case and control groups.

**Results:** Quantitative G6PD-level assessment showed that five (5%) subjects in the case group vs one (1%) of the control group were severely deficient and nine (9%) cases vs one (1%) control were moderately deficient. Enzyme-level differences were statistically significant ( $P=0.003$ ).

**Conclusion:** Our study showed higher incidence of G6PD deficiency in neonates who had been admitted due to sepsis. We suggest quantitative G6PD-level assessment instead of the routine qualitative methods in prevalent G6PD deficiency. It is also recommended that neonates with G6PD deficiency be under close supervision during the first month of life, especially those with other risks of neonatal sepsis, such as prematurity or low birth weight.

**Keywords:** G6PD, neonatal sepsis, morbidity