



Lipid Peroxidation And ascorbic Acid Concentration During blood Storage

Ureme S.O.¹, Blessing Chekwube Eluke¹, Onwurah I. N. E.², Onwusi S.I.³

¹Department of Medical Laboratory Science, College of Medicine, University of Nigeria, Enugu Campus. Enugu Nigeria.

²Pollution control and Biotechnology unit, Department of Biochemistry, University of Nigeria Nsukka, Nigeria

³University of Nigeria Teaching Hospital, ItukuOzalla Enugu, Nigeria.

Abstract : Storage of donor blood for transfusion is a critical issue in blood transfusion practice. Biochemical changes attendant on storage of donor blood have been variously documented and are associated with reduced viability of transfused red cells. Lipid peroxidation as a result of oxygen free radicals and reactive oxygen species may be additional storage lesions which are not yet attracting attention of many blood banks. This investigation considered the possible peroxidation of red cell membrane and ascorbic acid concentration during storage. Blood samples were collected from twenty apparently healthy blood donors at the University of Nigeria Teaching Hospital, Enugu, Nigeria using CPDA anticoagulant solutions. The blood samples were subsequently divided into blood storage bottles and lipid peroxidation measured as malondialdehyde (MDA). Ascorbic acid concentration was also determined on the first day of collection and subsequently after two, four and six weeks at 4-6°C. Lipid peroxidation products measured as MDA increased progressively with significant differences between concentrations of the first day of collection and second, fourth and sixth weeks of storage ($P < 0.05$). However, there was no significant difference ($P > 0.05$) between the ascorbic acid of the first day of collection (1.27 ± 0.06) and the second week of storage (1.16 ± 0.39). Lipid peroxidation increased with storage while ascorbic acid concentration decreased. These may constitute a problem during storage in blood banks.

Keywords : Ascorbic acids, Blood storage, biochemical changes, lipid peroxidation, malondialdehyde.