

# Risk Factors For Post-Donation Syncope Among Blood Donors In Nigeria

S Ahmed, A Gwarzo

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## Abstract

The world health organization recommends that blood donation should in all cases be absolutely voluntary with an altruistic motive of helping the unknown recipients.<sup>1</sup> However, only persons in good health should be accepted as donors of blood for therapeutic use.<sup>2</sup> The suitability of prospective donors should be determined by a pre-donation assessment of his/her health status. A significant part of the assessment procedure usually takes the form of verbal screening with reliance on answers to simple standard questions relating to general health, past medical history, medications and simple general physical examination including the measurements of weight and blood pressure of the prospective donor.<sup>2</sup> Persons who are between the ages of 18 and 65 years and have passed the pre-donation medical assessment with haemoglobin levels of more than 13.5 g/dl in males or 12.5 g/dl in females are acceptable as donors.<sup>2, 3</sup> However, pregnant and lactating women are not accepted for homologous blood donation.<sup>2, 3</sup>

Healthy persons can donate up to 450ml of blood without any deleterious effect on their body, and with only a temporary effect on their circulatory system from which recovery is rapid.<sup>2, 3</sup> Nonetheless, syncopal episodes do occur among blood donors with an incidence of between 2% to 5% of all donors in the United Kingdom, being especially common in first-time donors due to nervousness and vasovagal reactions resulting from anxiety.<sup>3</sup> The risk of vasovagal attacks is higher among donors who weigh less than 50kg, since the standard donation of a pint of blood represents a greater proportion of their total blood volume.<sup>3</sup> In this report we evaluated the incidence and pattern of risk factors for post-donation syncope as seen in Nigerian blood donors at the blood bank of the University of Maiduguri Teaching Hospital, Maiduguri, North East Nigeria.

All cases of post-donations syncope at the blood bank of

University of Maiduguri Teaching Hospital were routinely investigated. The investigation usually took the form of a medical examination and re-assessment of the donor medical and drug history with the aim of determining the cause of the syncope in each case. This study is conducted by retrospective appraisal of the result of such investigations carried out during a 5-year period from 2002 to 2006.

During the period under review, a total of 10, 124 donors were bled at the blood bank. Out of these 10, 124 donors only 51 had post-donation syncope. Therefore the incidence rate of syncope among our donors was 0.5%. All cases of syncope were seen in first-time donors and occurred immediately within fifteen to thirty minutes after the completion of blood donation as they get out of the donation coach getting ready to go home. The weight of the affected donors ranged from 59- 76kg. The documented risk factors for syncope included donor medication with alpha methyl dopa in 22 (43%) cases, propranolol in 8 (16%) cases and amitriptyline 8 (16%) cases. Anxiety was identified as the risk factor for syncope in 13 (25%) cases as shown on Table 1.

## Figure 1

Table 1: Risk Factors Among 51 Donors with Post-Donation Syncope

RISK FACTORS FOR SYNCOPE	NUMBER OF DONORS AFFECTED (%)
Undisclosed Drug Usage:	
Alpha Methyl dopa	22 (43)
Propranolol	8 (16)
Amitriptyline	8 (16)
Anxiety	13 (25)
Total	51 (100)

The result of this study revealed that post-donation syncope

occurred in our donors with an incidence rate of 0.5%, which was lower than the incidence of 2%-5% reported among British donors.<sup>3</sup> None of the affected donors weighed less than 50kg, hence ruling out low donor weight as a possible risk factor for post-donation syncope in our cases.<sup>3</sup> Nonetheless, all of our cases of syncope occurred in first-time donors, which suggested that background anxiety could be partly responsible for the syncope. However, anxiety was identified as the sole cause of syncope in only 25% of our cases. More over, therapeutic drug usages by donors were identified as the risk factors for post-donation syncope in the vast majority (75%) of our cases. This differs from the report in United Kingdom where anxiety was the predominant cause of post-donation syncope in the vast majority of cases.<sup>2, 3</sup>

. The culprit drugs that were implicated in this report included two anti-hypertensive agents (alpha methyl dopa and propranolol) and one tricyclic anti-depressant (amitriptyline), the intake of which were not revealed by the donors during pre-donation interviews. The two anti-hypertensives, which included alpha methyl dopa (centrally acting sympatholytic agent) and propranolol (beta adrenergic blocker) are both capable of inducing orthostatic hypotension and syncope as side effects, while propranolol has the additional deleterious effect of abolishing cardiac response to blood volume reduction.<sup>4, 5</sup> Therefore, these drugs are capable of interfering with the normal process of recovery from the haemodynamic changes associated with blood donation thereby causing syncope.<sup>2</sup> For these reasons, persons on anti-hypertensive drugs are generally not accepted as donors.<sup>2</sup> Amitriptyline, like other tricyclic anti-depressants causes orthostatic hypotension as a major side effect and can therefore precipitate syncope.<sup>6</sup> Hence, persons on tricyclic anti-depressants should not be accepted for donation.<sup>2</sup> The result of this study underscores the importance of meticulous enquiry into donor medication history. It was not clear why the affected donors did not declare their medications during pre-donation interviews. However, this may be a reflection of the fact that a significant proportion of our donor panel consists of family replacement donors and commercial donors who donate blood based on family ties or financial motivations, and such donors may therefore be unwilling to reveal any medical history that can disqualify them from donation.<sup>7</sup>

At the moment there are no standard guidelines for medical assessment and selection of donors in Nigeria as a result of the lack of a functional national transfusion service.

Consequently, individual blood banks vary in the extent of their pre-donation medical assessment. However, the current collaborative efforts being made by the Nigerian government and the Safe Blood for Africa Foundation, which is an American based corporation, aimed at providing organized national blood transfusion service in Nigeria and other African countries is commendable.<sup>8</sup> Nonetheless, it is important that every blood bank should strive to prevent the occurrence of post-donation syncope by paying extra attention and placing greater emphasis on drug history so as to identify and defer donors at high risk of drug induced post-donation syncope. This is important because post-donation syncope is not only unpleasant to the donor but it also has the potential to reinforce fear of blood donation within the donor population and scare away prospective donors. Certainly we cannot afford to scare away donors in a country such as Nigeria where voluntary blood donors are scarce.<sup>7</sup>

This study showed that post-donation syncope among blood donors in Maiduguri, northeast Nigeria was low and mostly associated with undisclosed therapeutic drug usage. It is therefore essential to intensify the scrutiny of donor medication history during pre-donation assessment. There is therefore an urgent need for a functional national blood transfusion service that shall encourage voluntary blood donation and promulgate standard guidelines for medical assessment and selection of donors in Nigeria.

### CORRESPONDENCE TO

Dr SG AHMED Department of haematology College of medical sciences University of maiduguri Pmb 1069, maiduguri Borno state, nigeria drsagirahmed@yahoo.com

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**Author Information**

**S. G. Ahmed, MBBS, FWACP**

Department of haematology, College of medical sciences, University of Maiduguri

**A. K. Gwarzo, MBBS, FMCPath**

Department of haematology, Faculty of medicine, Bayero University Kano