



## Letter to the editors

### **ABO blood group in Malagasy patients with cancer: which group predominates?**

**Nomeharisoa Rodrigue Emile Hasiniatsy<sup>1,&</sup>, Elodie Emile Batavisoaniatsy<sup>2</sup>, Valéry Refeno<sup>3</sup>, Mamy Andriambololona<sup>4</sup>, Andriatsihoarana Voahary Nasandratriniavo Ramahandrisoa<sup>3</sup>, Florine Rafaramino<sup>5</sup>**

<sup>1</sup>Oncologie Médicale, Faculté de Médecine d'Antananarivo, Antananarivo, 101, Madagascar, <sup>2</sup>Immunologie, Allergologie, Faculté de Médecine d'Antananarivo, Antananarivo, 101, Madagascar, <sup>3</sup>Oncologie Médicale, Faculté de Médecine d'Antananarivo, Antananarivo, 101, Madagascar, <sup>4</sup>Biologie Médicale, Faculté de Médecine d'Antananarivo, Antananarivo, 101, Madagascar, <sup>5</sup>Oncologie Médicale et Radiothérapie, Faculté de Médecine d'Antananarivo, Antananarivo, 101, Madagascar

<sup>&</sup>Corresponding author: Nomeharisoa Rodrigue Emile Hasiniatsy, Service d'Oncologie et de Soins Palliatifs, Centre Hospitalier de Soavinandriana (CENHOSOA), BP 6 Bis Antananarivo, 101, Madagascar

Key words: ABO blood groups, cancer, Madagascar, oncology

Received: 20/12/2018 - Accepted: 09/01/2019 - Published: 12/02/2019

#### **Abstract**

The blood group of Malagasy patients with cancer have never been the subject of previous publications. Our objective was to determine the blood group of Malagasy patients with cancer followed in the Medical Oncology Unit of the Soavinandriana Teaching Hospital, Antananarivo. This was a one-year retrospective study (November 2012 to October 2013) in patients over the age of 15 with histological or pathological evidence of their cancer. One hundred and thirty of the 258 patients identified had an ABO blood group determination (50.39%). Among these 130 patients, 114 patients (87.69%) had solid tumors and 16 patients (12.31%) had hematologic malignancies. Thirty seven (28.49%) patients were transfused and 93 (71.54%) not transfused. There were 57 men and 73 women (sex ratio = 0.78), the average age was 55.11 +/- 14.76 years. With regard to their blood group, 52 patients (40%) were blood group B, 44 (33.84%) group O, 27 (20.76%) group A and 7 (5.38%) group AB. The order of blood group frequency of cancer patients in our series differs from other studies. This study has allowed us to know the proportion of each blood group in our Unit and thus help us in the management of stocks of labile blood products in our hospital.

**Pan African Medical Journal. 2019;32:73. doi:10.11604/pamj.2019.32.73.17994**

This article is available online at: <http://www.panafrican-med-journal.com/content/article/32/73/full/>

© Nomeharisoa Rodrigue Emile Hasiniatsy et al. The Pan African Medical Journal - ISSN 1937-8688. This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/2.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

## Letter to the editors

---

Few studies on the Malagasy blood group have been conducted in the general population and among certain categories of population [1, 2]. For the cancer, although the association between ABO blood groups and the occurrence of cancer has been reported in the literature [3-5], no study on this subject has been conducted in Madagascar. To our knowledge, there is no known repartition of the blood group of Malagasy cancer patients published. This study aimed to determine the ABO Rhesus blood group of cancer patients in the Medical Oncology Unit of the Soavinandriana Hospital Center (CENHOSOA) in Antananarivo, Madagascar. We report here the results of a year of transversal retrospective study (November 2012 to October 2013) within the CENHOSOA Medical Oncology Unit. We have described the blood groups according to the ABO system of patients over 15 years old, with histological or cytological proven cancer, recorded in this unit. The data was collected on Excel 2003® software. One hundred and thirty of the 258 patients identified had an ABO blood group determination (50.39%). Among these 130 patients, 114 patients (87.69%) had solid tumors and 16 patients (12.31%) had hematologic malignancies. Thirty seven (28.49%) patients were transfused and 93 (71.54%) not transfused. There were 57 men and 73 women (sex ratio = 0.78), the average age was 55.11 +/- 14.76 years. With regard to their blood group, 52 patients (40%) were blood group B, 44 (33.84%) group O, 27 (20.76%) group A and 7 (5.38%) group AB (Table 1).

This is the first ABO blood group study in Malagasy patients with cancer. It allow us determine the blood groups' repartitions of some Malagasy patients suffering from cancer. Although in the Malagasy population, knowing the blood group is not common [1, 2], the blood group of the half of our patients was known. The order of blood group frequency of cancer patients in our series differs from the blood group studies performed in young recruits of the Moramanga gendarmerie school in 1969 (out of 2411 men) and in patients who came to the Androva emergency room (Mahajanga) in 2010 (out of 51 patients). Our study suggests that group B (40%) is the main blood group found in cancer patients treated in the CENHOSOA Medical Oncology Unit. In fact, this blood group does not exceed the percentage of subjects of group O (43.8% against 29.3%) in the Mayoux study in 1969 [1]. In the Emergency Department of Androva Hospital (Mahajanga) group B came third (17.6% of patients) after group O (47.1%) and group A (27.5%) [2]. These results should be interpreted with caution as our study,

while being retrospective, was performed clinically and the blood group was the one reported in the patient's chart. The increasing risk by the blood group B or protection by the other blood groups regarding the cancer could not be verified in our study because of the absence of non-cancerous controls. Nevertheless, these results will serve to make aware the blood bank of our hospital on the management of their reserve. In addition, they encourage us to perform a case-control study comparing cancer patients with the general population. Indeed, this role of group B as a risk factor for cancer is rarely reported in the literature [3-5]. Although people in group A would be at greater risk of developing cancer compared to those in non-A groups and blood group O would be associated with a decreased risk of cancer development in most of the literature data [3, 4], some population such as India where the 42.05% of cancer patients are group B, would be an exception [5]. Thus, the association between group B and cancer is to be verified among Malagasy to assess our results.

## Conclusion

---

The order of blood group frequency of cancer patients in our series differs from other studies. The possible biases of our study remind us of the need to carry out studies determining the association between blood groups ABO and the risk of developing cancers in our country. Nevertheless, this study has allowed us to know the proportion of each blood group in our Unit and thus help us in the management of stocks of labile blood products and awareness of donations of blood in our hospital.

## Competing interests

---

The authors declare no competing interests.

## Authors' contributions

---

Nomeharisoa Rodrigue Emile Hasiniatsy, Elodie Emile Batavisoaniatsy & Florine Rafaramino contributed to the conception of the work the acquisition of data for the work. Nomeharisoa Rodrigue Emile Hasiniatsy, Valéry Refeno, Andriatsihoarana Voahary Nasandratriniavo Ramahandrisoa & Mamy Andriambololona

contributed to the acquisition of data for the work. Nomeharisoa Rodrigue Emile Hasiniatsy, Elodie Emile Batavisoaniatsy drafted the work. Valéry Refeno, Andriatsihoarana Voahary Nasandratriaviavo Ramahandrisoa, Mamy Andriambololona & Florine Rafaramino revised the work critically for important intellectual content. Nomeharisoa Rodrigue Emile Hasiniatsy, Elodie Emile Batavisoaniatsy, Valéry Refeno, Andriatsihoarana Voahary Nasandratriaviavo Ramahandrisoa, Mamy Andriambololona & Florine Rafaramino approved the final version to be published and agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. All the authors have read and agreed to the final manuscript.

## Acknowledgments

---

The authors would like to thank the paramedical and medical staff of the medical oncology unit of the military hospital of Antananarivo for their contributions to this study.

## Table

---

**Table 1:** Distribution of cancer patients followed in the Medical Oncology Unit of the Centre Hospitalier de Soavinandriana (November 2012-October 2013) according to their ABO blood group

## References

---

1. Mayoux A, Rakotomalala GN. Les groupes sanguins à Madagascar: approche hémotypologique du peuple Malgache. Arch Inst Pasteur Madagascar. 1973; 42(1): 205-17.
2. Raveloson NE, Rasamimanana NG, Razafimahefa M, Hassani AM, Raharimanana RN, Ralison A *et al*. Evaluation des besoins en produits sanguins dans le Service des urgences du CHU de Mahajanga (Madagascar). RAMUR, 2012 Juillet. Consulté le 18/09/2018.
3. Zhang BL, He N, Huang YB, Song FJ, Chen KX. ABO blood groups and risk of cancer: a systematic review and meta-analysis. Asian-Pac J Cancer Prev. 2014; 15(11): 4643-50. **PubMed | Google Scholar**
4. Liumbruno GM, Franchini M. Beyond immunohaematology: the role of the ABO blood group in human diseases. Blood Transfus. 2013; 11(4): 491-9. **PubMed | Google Scholar**
5. Ray AK. Blood Groups and Cancer in India. Current Anthropology. 1980; 21(6): 794-795. **Google Scholar**

**Table 1:** Distribution of cancer patients followed in the Medical Oncology Unit of the Centre Hospitalier de Soavinandriana (November 2012-October 2013) according to their ABO blood group

<b>ABO blood group</b>	<b>Number</b>	<b>Frequency (%)</b>
<b>A</b>	27	20.8
<b>B</b>	52	40.0
<b>O</b>	44	33.8
<b>AB</b>	7	5.4
<b>Total</b>	130	100.0