



PIONEER BLOOD BANK DATA STUDY OF JALGAON DISTRICT OF MAHARASHTRA

Pathology

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ABSTRACT

The State blood transfusion Council of the state of Maharashtra in a recent report spoke about the shortage of blood in blood banks due to the current restrictions implemented because of the COVID-19 pandemic. Blood donation camps conducted earlier used to keep up the stock of blood banks to meet the necessary demands. In this study we aim to analyse the effects of these blood banks and blood donation camps in Jalgaon district by looking over data from over 9 years from now. On analysing the 9 year data from 2011 to 2019, it was found out that total number of camps conducted were 433 which resulted in a total collection of 22,422 blood units. Total collections in blood bank in this period were 11,779 blood units. There was significant positive co-relation ($p < 0.01$) in the number of camps conducted and the number of blood units collected. Males donated more than women in both the sources. The demand of blood bags was 21.5 % more than collected in the 5-year period. There was significant increase in the number of blood donation camps conducted and blood units collected after the establishment of a government medical college in 2018.

KEYWORDS

Blood donations; camps; blood banks; Jalgaon; Maharashtra

Introduction

The State blood transfusion Council of the state of Maharashtra in a recent report spoke about the shortage of blood in blood banks due to the current restrictions implemented because of the COVID-19 pandemic. Blood donation camps conducted earlier used to keep up the stock of blood banks to meet the necessary demands^[1]. In the state of Karnataka, a non-profit government organization which conducts blood donation camps, highlighted that in there was a shortage of 1.5 lac units of blood in Bangalore alone. 90% of the donors who want to donate don't know where to donate blood^[2]. The establishment of a government medical college in Jalgaon district of Maharashtra since 2018 has increased expertise in field of blood transfusion and community medicine. In this study we aim to analyse the effects of these blood banks and blood donation camps in this district by looking over data from over 9 years from now.

Methodology

In this study we collected data of blood donations from blood bank and blood donation camps for period of 9 years 2011 to 2019. Gender-wise donations were also noted. In order to highlight the utilization of blood bags, 5-year data from 2015 to 2019 about the total blood bags issued were also noted. Analysis of this data was done using MS-Excel 2016 and IBM SPSS version 25 software^[3]. The questions which were targeted for answer are as follows:

1. Which method of blood donation is more effective: blood banks or blood donation camps?
2. Is there any co-relation between the number of camps organized and the total collection of blood from them?
3. Which gender donated more blood?
4. Is the demand of blood bags met from the collection done?
5. How the presence of health experts and medical education centre in the district helped in this process?

Results

On analysing the 9 year data from 2011 to 2019, it was found out that total number of camps conducted were 433 which resulted in a total collection of 22,422 blood units. Out of these, 21,156 were donated by men (94.35%) and 1266 were donated by women (5.65%) (Figure 1). Total collections in blood bank in this period were 11,779 blood units. Of these 11,734 were donated by men (99.62%) and only 45 were donated by women (0.38%). Total collection from both the sources for the nine-year period was 34,201 units. On analysing the 5-year data from 2015 to 2019, it was found that 21,901 units of blood were collected from both sources. Total blood units issued for use were 26,622 which clearly indicated that blood was obtained from sources

other than blood banks and donation camps. The above findings clearly suggest that blood donation camps are more effective than blood banks donations. It was also noted that there was significant positive correlation ($p < 0.01$) in the number of camps conducted and the number of blood units collected (Figure 2). Males donated more than women in both the sources. The demand of blood bags was 21.5 % more than collected in the 5-year period. There was significant increase in the number of blood donation camps conducted and blood units collected after the establishment of a government medical college in 2018 (Figure 3). After testing all blood units, hepatitis B positive samples were 383 out of 37,545 (1.02%). Hepatitis C positive sample were 20 out of 37545 (0.05%).

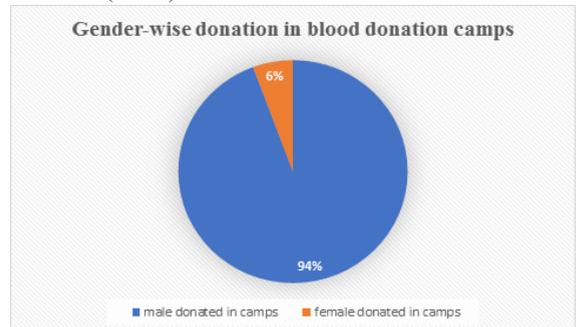


Figure 1: Gender-wise donation in blood camps. Pie-chart generated using MS-Excel 2016.

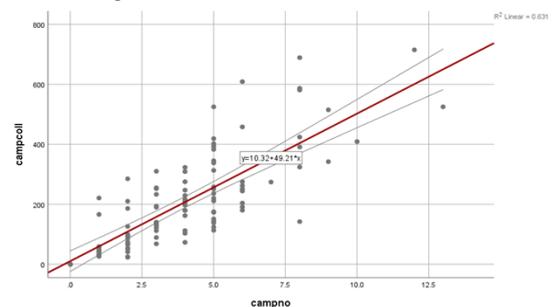


Figure 2: With increase in number of camps (y-axis), the number of blood units donated also increase linearly (x-axis). Equation obtained: $y = 49.21x + 10.32$. Scatter plot generated using IBM SPSS version 25.

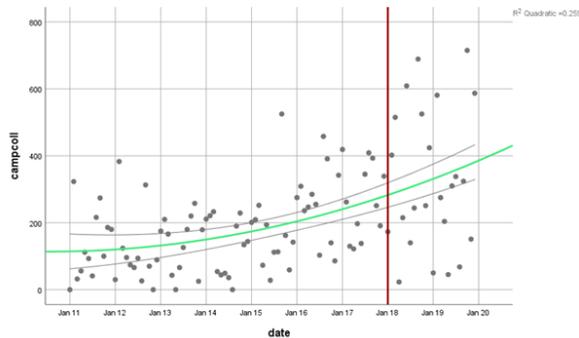


Figure 3: Significant increase in blood donation in camps over time represented by green line. Increase in donations after January 2018 is marked by red line after establishment of medical education institution.

DISCUSSION

Blood donation camps were more effective than blood bank to receive donations because of increased reach and influence. Blood banks are generally located at one place in a single town and it decreases the physical accessibility for donors. Camps however are able to reach much more deeper parts of the district and hence increase accessibility for donors. Camps are accompanied by slogans, advertisements, marches etc. which thereby increases influence on the general population. The public gets a better understanding of the necessity and importance of blood donation. Men donated blood more than women which is because of the reason that most women are anaemic which disqualifies them to be a donor. However, women contributed more in camps rather than blood banks, which proves the increased reach and influence of camps. The presence of health experts and a medical education centre in the district increase the number of such camps being held which ultimately leads to more blood unit donations. The increased demand to low supply of blood units is still a challenge in the district so that a more cost-effective and sustainable patient management system can be built. A study conducted in Christ Medical College and Hospital, Vellore also indicated similar results with increase in blood donations by increasing the number of camps^[4]. This type of study has not been conducted before in this district and will provide better insights to improve existing systems and increase blood donations to meet the patient demands effectively. Hepatitis C positivity rate found out in our study was 0.05% which is much lower than the positivity rate in India (0.5%-1.5%)^[5]. Hepatitis B positivity rate is 1.02% in our study which is consistent with a study by World Health Organisation which ranged the prevalence between 1% to 4.7% in India^[6].

CONCLUSION

Our study has shown that blood donation camps are the most effective ways to influence people for volunteering to donate blood. Increased demand needs to be managed with increased supply and therefore improving on these methods is imperative.

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Conflict of interest: None.

REFERENCES

1. News, C., & News, P. (2020). Maharashtra stares at acute shortage of blood, banks' stock to last 10 days | Pune News - Times of India. The Times of India. Retrieved 30 August 2020, from https://www.google.com/amp/s/m.timesofindia.com/city/pune/state-starting-at-blood-shortage-stock-just-enough-to-last-10-days/amp_articleshow/74868308.cms.
2. Shortage of Blood in Blood Banks | Sankalp India Foundation. Sankalpindia.net. (2020). Retrieved 30 August 2020, from <http://www.sankalpindia.net/book/shortage-blood-blood-banks>.
3. IBM Corp. Released 2017. IBM SPSS Statistics for Windows, Version 25.0. Armonk, NY: IBM Corp.
4. Siromani, U., Rajaiah, M., Daniel, D., Mammen, J. J., & Nair, S. C. (2012). Ahead to 100% of voluntary nonremunerated blood donation at a tertiary referral hospital blood bank in South India. *Asian journal of transfusion science*, 6(2), 190.
5. Puri, Pankaj, et al. "Consensus statement of HCV task force of the Indian National Association for Study of the Liver (INASL). Part I: Status report of HCV infection in India." *Journal of clinical and experimental hepatology* 4.2 (2014): 106-116.
6. World Health Organization. (2002). Prevention of hepatitis B in India: an overview (No. SEA-EPI-141). WHO Regional Office for South-East Asia.