



Intrahospital Anemias due to Phlebotomies



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Background

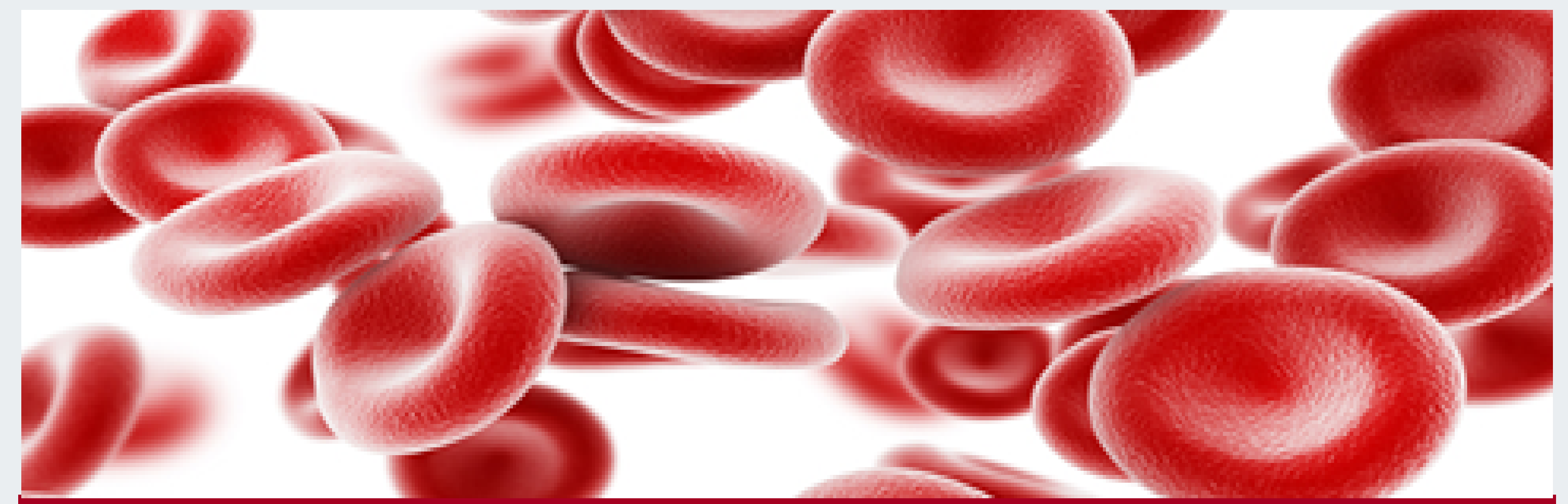
- Anemia, medical condition characterized by a hemoglobin deficiency in blood. It may be due to lack of erythrocytes or low amount of hemoglobin within them.
- Phlebotomies are the most used sample for analytical studies. They allow us to enter the blood stream, obtain a sample and use it to establish diagnoses, make follow ups and evaluate changes in the patient's clinical status.
- Hospitalized patients are constantly subjected to phlebotomies in short time intervals between each sample throughout their hospitalization.
- The continued extraction of blood can cause a decrease in hemoglobin and hematocrit levels, which can lead patients to develop anemia during the time they remain hospitalized.

Project Aim

- Determine if phlebotomies are a risk factor for the development of anemia in patients hospitalized in the Internal Medicine service of the HGR 1 of Queretaro.

Project Design

- Type of study: Cohort.
- Exposed group: formed by the patients after entering the Internal Medicine service from the HGR1 IMSS Queretaro. Non-exposed group: formed by the patients before entering the Internal Medicine service from the HGR1 IMSS Queretaro.
- All patients of legal age and hospitalized for the first time in the Internal Medicine service of the HGR1 IMSS Queretaro were included.
- All patients who presented active bleeding, had undergone a major surgery, were on dialysis, patients with stroke, blood transfusions, previous diagnosis of anemia or are undergoing chemotherapy were excluded.
- 51 patients files who fulfilled the criteria were taken.
- All the phlebotomies taken from their admission day until the day the census was carried out were counted.
- The obtained information from the files was collated with the information in the laboratory system of the GRH 1 IMSS of Queretaro and corroborated with the information in the blood bank system to corroborate that patients haven't received blood transfusions.
- To establish the anemia diagnosis and range of parameters, the values were established by the laboratory of the HGR1 IMSS Queretaro.
- To evaluate the changes in hemoglobin, hematocrit and erythrocyte count the values from the first blood count were compared with the last blood count until the census.



Results

Hemoglobin	Before	After	Difference	T	P
Average	13.54 g/dL	12.02 g/dL	1.51 g/dL	6.05	0.00
Standard Deviation	1.94	2.23			

Hematocrit	Before	After	Difference	T	P
Average	41.01 %	37.6 %	3.40%	4.69	0.00
Standard Deviation	5.9%	6.4			

Erythrocytes Count	Before	After	Difference	T	P
Average	4.39 million/ μ L	4.0 million/ μ L	0.32million/ μ L	2.96	0.004
Standard Deviation	0.70	0.74			

Conclusion

- There was a decrease in the average concentration of hemoglobin after the census was carried out, this decrease was of 1.51pg/dL, which is statistically significant.
- The hematocrit percentage show a decrease of 3.40% when evaluating the average obtained at their admission versus the average obtained the day of the census. The decrease of the hematocrit showed statistical significance.
- The erythrocytes count show a decrease of 0.32 million/ μ L between the average of the erythrocytes count at their admission day and the average obtained the day of the census. This decrease show statistical significance.