

MONITORING OF POTASSIUM INTAKE IN MILD AND MODERATELY HYPERTENSIVE PATIENTS

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Abstract

Background: Monitoring of potassium intake in mild and moderately hypertensive patients. **Materials and Methods:** A sample size of 100 patients was considered appropriate to monitor the changes produced. A prospective data collection study was done in a tertiary care hospital was done. **Result:** During the primary data collection, it was noted that increased intake of potassium, in addition, to sodium restriction was hardly ever suggested and even if it was, 'potassium rich diet' was a rather arbitrary term to be understood by the general public. The major issue that was noted was the lack of knowledge by the patients as to what qualifies as a potassium rich food. Even the people with an educated background lacked the knowledge of the authentic resources that could be trusted. **Conclusion:** The most common response was that failure rate for lifestyle changes was very high and patients often could not find the time to keep track of food consumption.

INTRODUCTION

Evidence has shown that high potassium intake can reduce blood pressure (BP), decrease the risk of developing cardiovascular disease, and mitigate the adverse effects of salt on blood pressure.^[1] The World Health Organization (WHO) recommends a potassium intake of at least 90 mmol/day (3.5 g/day) from food for adults to reduce BP and risk of cardiovascular disease, cerebrovascular events, and coronary heart disease. Current evidence has shown no significant difference between the flavor and taste of potassium-enriched salt and regular salt.^[2] The WHO also recommends a potassium intake of at least 90 mmol/day from food for children to control BP.^[3] However, there is no need to give a supplement or specially formulated products because most people can replace needed potassium through food consumption.^[4,5] Reason for audit: Despite the clinical evidence the backs up the crucial role of increased potassium intake in managing hypertension; there has been a perceived deficiency of counselling for it when it should have been carried out routinely. At the local hospital of my employment, it was observed that sodium restriction was advised to all newly diagnosed hypertensive patients; however, potassium increment was more than often missed, despite the knowledge that it increases sodium excretion. I identified a massive gap in clinical practice which I believed could be closed with this audit. The objective of the audit was to implement more effective non pharmacological intervention for improving patient wellbeing for those living with mild to moderate hypertension just

by increasing potassium intake. The earlier introduction of medication could also be avoided or at least the dose could be reduced if potassium intake was advised more often to patients. The progression of active pathology could also be slowed down in cases where it can't be cured. Criteria to be measured: Number of patients on potassium rich diet who are mild to moderately hypertensive with no other co morbidities. At the time of selection for audit, they should not have been taking any medication for blood pressure. Pregnant women were to be excluded. Patients who fit the criterion are to be checked again after 8 weeks. Standards set: An improvement upto 80% should be noted.

MATERIALS AND METHODS

Sample Size: A sample size of 100 patients was considered appropriate to monitor the changes produced. A prospective data collection study was done in a tertiary care hospital was done.

Procedure: Following the approval by the ethical committee, this audit was undertaken under the guidance of a senior consultant. According to the NICE guidelines, no supplements of potassium were given to patients only lifestyles changes were encouraged. A team of resident doctors was involved, which reinforced that all guidelines were being followed according to the proper standards. First 100 patients that presented to the clinic starting on 7th April were selected for the audit. Patients with mild to moderate hypertension were included in the study. Patients with severe hypertension or patients already on some form of a medication for hypertension were

excluded from this audit as they didn't fit the criteria; therefore, results could not be calculated effectively. Any complicated cases or patients with any other comorbidities were also not included. Pregnant women were also excluded. Effects of adequate potassium intake in mild to moderately hypertensive patients, following a period of 8 weeks, were to be noted. Since the average waiting time in OPD was 15- 20 minutes, posters in two languages were set up in the waiting room. This time was thought could be used by the patients to read the posters. Said posters consisted of names of all easily available regional food items rich in potassium for vegetarians and non-vegetarians, written in both Hindi and English. After the appointment, the same charts were handed out to all the patients who fit the criteria of selection. Patients from a rural background faced difficulty in reading either languages. This was overcome by printing pictures of food item corresponding to its name. Following this, the second set of data was collected after 2 months in June of 2023. The results were tabulated.

NICE guidelines were followed when diagnosing the patients with hypertension:

- For each blood pressure recording, 2 consecutive measurements are taken, at least 1 minute apart and with the person seated and
- Blood pressure is recorded twice daily, ideally in the morning and evening and blood pressure recording continues for at least 4 days, ideally for 7 days

RESULTS

Description of changes implemented

During the primary data collection, it was noted that increased intake of potassium in addition, to sodium restriction was hardly ever suggested and even if it was, 'potassium rich diet' was a rather arbitrary term to be understood by the general public. The major issue that was noted was the lack of knowledge by the patients as to what qualifies as a potassium rich food. Even the people with an educated background lacked the knowledge of the authentic resources that could be trusted. There were issues like cost, availability, language barriers and religious choices that needed to be put into consideration before advising any food item. It was a challenge, initially, to come up with a solution plan that could encompass answers to all the above stated problems. Suggesting food item during consultation was foreseen to be inadequate because only a few item could be recommend, still fewer would be recalled by the patient and the issue if the patient might be able to afford were some major problems we would run into. The residents on the team came up with an idea of a pamphlet which included item names in both Hindi and English. A small minority were illiterate, to combat this a pictorial representation of the corresponding food item was present in front of its name. The pictures were detailed with bright colors to avoid any problem that might arise in recognition. A wide variety of food items were mentioned, including cost effective and vegetarian options that were easily available in their area of residence. No supplements were to be given. Salt alternatives containing potassium chloride weren't advised to older population.

Table 1: Results of data collection 1

Patients with mild to moderate BP elevation	Contraindicated	Number of patients on potassium rich diet	Proportion of patients on potassium rich diet	Standard
100	13	40	100-13=87 40/87*100=45%	80%

Table 2: Results of data collection 2

Date of data collection	Patients with mild to moderate BP elevation	Contraindicated	Number of patients on potassium rich diet	Percentage improved	Standard
DATA 1 April 2023	100	13	40	100-13=87 40/87*100=45%	80%
DATA 2 June 2023	100	13	71	100-13=87 71/87*100=81%	80%

DISCUSSION

After talking to various physicians as to why dietary changes to increase potassium intake were not recommended enough. The most common response was that failure rate for lifestyle changes was very high and patients often could not find the time to keep track of food consumption. Counseling could have helped but number of patients reporting to OPDS was always very high thus reducing the time given to each patient. The times when dietary changes were suggested orally, people often reported forgetting or some were shy to mention their dietary restrictions.

Therefore, a pamphlet was printed keeping in mind all these obstacles. In April of 2023, 100 patients were selected who fit the criterion. Out of these 13 were contraindicated because they had another comorbidity like diabetes, kidney failure etc. as a preexisting condition along with hypertension. During the first data collection, the number of hypertensive patients on potassium rich diet were just at 45% which is way below the standard at 80%. The room of improvement was noted. After 8 weeks, second set of data was collected in June. The number of patients that were then on a potassium rich diet rose to 71. The percentage shot up to 81% from 40%.

This also satisfied the standard set at 80% according to NICE guidelines. As a result, patients on a potassium rich diet in addition to sodium restriction showed a much better improvement in their blood pressure levels than those on sodium restriction alone. These results seemed normal under the given circumstances. A number of studies have revealed similar associations where ever this study might have fallen short. To bring an even more accurate result , this very audit can be carried out in future in other institutions to see if the results are consistent every time. This study does bring in the focus a very important issue of immediate knowledge in doctors on few subject matters to be slightly less than the expected level. This further asks an even more important question what in the curriculum must we change immediately to promise more well-equipped students, when it comes to providing better medical care. Sometimes cutting corners in medical practice doesn't seem very harmful as no direct consequences can be seen. However, in the long term it does compromise patient safety and recovery. This change will help us to see the cost of inaction that we are paying.

CONCLUSION

The most common response was that failure rate for lifestyle changes was very high and patients often

could not find the time to keep track of food consumption.

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