Use of Diuretics in Elderly Patients with Congestive Heart Failure

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Diuretics are essential for symptomatic relief when fluid retention is present in congestive heart failure (CHF). The dose of loop diuretics should be decreased to the minimum required to maintain a fluid-free state after excess fluid loss is achieved.1,2

Background

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Objectives

- To classify and analyse loop diuretic dose management;
- To evaluate pharmacist intervention in CHF by investigating diuretic use in the clinical setting.

Setting and Method

1. Ethics committee approval from St. Vincent de Paul Residence (SVPR), Rehabilitation Hospital Karin Grech (RHKG) and the University Research Ethics Committee was obtained prior to initiating the study.
2. The medical records of patients over 65 years of age, who had suffered from past episodes of CHF over a period of eighteen months, were consulted.
3. The relevant data was collected via a formulated patient profile.
4. Patients were chosen by convenience sampling and were classified into two groups to evaluate pharmacist intervention:
   - The control group (n1=54) from SVPR where there is no clinical pharmacy service; and
   - The intervention group (n2=59) from RHKG where a clinical pharmacist actively participates together with the healthcare team.
5. The management of the loop diuretic dose for each patient was either classified as being desirable or undesirable according to the formulated classification system for the study (Figure 1). The classification system exhausts all possible scenarios with the:
   - Undesirable consisting of those scenarios where patients have doses higher than 1 mg bumetanide (or its equivalent as furosemide); and
   - Desirable consisting of those scenarios where patients have doses lower than 1 mg or where attempts were made to decrease the dose but had to increase again.
6. Data was analysed using IBM SPSS® Statistics version 19.0.

Results

A considerable number of the patients (n1=23; n2=28) lied within the undesirable category, with the control group proportion being 42.6% and that of the intervention group being 47.5% (Figure 2). There was no statistically significant difference in loop diuretic dose management between the institutions (p=0.604).

The side effect of hyponatraemia tended to occur at doses higher than the established 1 mg threshold used in the study. This association was more apparent in patients at RHKG. The category which had the highest number of patients in both institutions was when the dose was between 1.5 and 4 mg daily bumetanide dose. The proportion of RHKG patients (60%) (n2=9) suffering from hyponatraemia at this dose range was greater than that of SVPR patients (50%) (n1=4). (Figure 3).

Conclusion

This study highlights the need to emphasise clinical pharmacist intervention to follow appropriate loop diuretic dose management as most patients unnecessarily remained on a high dose. High diuretic doses were more likely to predispose patients to hyponatraemia.

References