Drug-related Problems and Length of Stay in the Management of Infection in Patients with Chronic Kidney Disease

Oleh:

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Drug-Related Problems and Length of Stay in the Management of Infection in Patients with Chronic Kidney Disease

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Background

Chronic kidney disease (CKD) remains a global issue due to its increasing prevalence, low treatment rate, high costs, and poor outcomes (Levey 2009). Numerous drugs are required to treat the disease together with its comorbidities and complications which can ultimately result in drug-related problems (DRPs) and affect patient outcomes and extend hospital length of stay (LOS) (Manley 2006). Identification and resolving DRPs may decrease drug use, cost, and shorten LOS.

Objectives

To describe DRPs (drug interaction and irrational dose) incidence, and their impacts on LOS of patients with CKD stage 4 and 5 hospitalized in RSU Acama Matic (RAM) hospital, Indonesia.

Methods

A retrospective cohort study was conducted on 80 stage 4 and 5 CKD patients based on JAMKESMAS database for six-month period (October 2009 through March 2010). Identification and analysis of drug interaction and antibiotics irrational dosing were performed using Stockley’s drug interactions, Medline, and Handbook of Clinical Drug Data. The impacts of these DRPs (as independent variables) on LOS (as dependent variable) were analyzed by multiple linear regression.

Results

![Graphs showing incidence of CKD by age, incidence of CKD by stage, occurrence of drug interaction, and occurrence of antibiotics irrational doses.]

- Study population characteristics: Mean age in years was 47.06±13.80. As shown in Figure 1, CKD was more prevalent (35%) in male compared to female (24%), p=0.003. There were more patients on CKD stage 5 (33%) compared to stage 4 (17%), p=0.000.
- The 6 largest frequently occurred drug interactions as demonstrated in Figure 2 were between paracetamol and cotrimoxazole, ramipril, and heparin, amoxicillin, and metronidazole.
- Paracetamol accounted for the largest contribution to the drug interaction occurrence.
- Irrational drug interactions and antibiotics irrational dosing were represented by R square (0.255) which means that only 25.6% of the LOS could be explained by these DRPs. There should be other determinants of the hospital LOS such as comorbidities, health service provision, and patients adherence. Drug interaction had significant contribution on LOS (slope=-2.17, p=0.00). Irrational dose also did not have a significant contribution on LOS (slope=-0.97, p=0.27). Mean of LOS: 8.6±6.78.
- This study proved from the linear equation that if the DRPs were resolved, then LOS of the patients would only be 3.91 days. This study supports a study conducted by Far et al. that resolving DRPs through a pharmaceutical care on patients undergoing hemodialysis has decreased drug use, cost, and shortened LOS (2010).

Conclusions

- Drug interaction and irrational dosing contributed to LOS of CKD patients.
- The impact of drug interaction on LOS of CKD patients was higher compared to that of irrational dose of antibiotics. Occurrence of one drug interaction increased LOS 2.16 days, while occurrence of one irrational dose increased LOS 0.97 day.
- Resolving drug interaction and irrational dose can reduce LOS of CKD patients.
- Inclusion of clinical pharmacists into the multidisciplinary health care providers is crucial.

References

Judul Makalah: Drug-related Problems and Length of Stay in the Management of Infection in Patients with Chronic Kidney Disease


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Reviewer 1

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LEMBAR
HASIL PENILAIAN SEJAWAT SERIDANG ATAU PEER REVIEW
KARYA ILMIAH PROSIDING

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Revise 2

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