

contraindicated medications include: unadministered contraindicated medications (220 cases, 42.8%); drugs taken intermittently or pro re nata (PRN) (147, 28.6%); administered by a clinical decision (79, 15.4%); local administration (21, 4.1%); meaningless words (44, 8.6%); and emergency medication (three, 0.6%). The reasons for prescribing contraindicated medications with drug-drug interaction in cases of anti-diabetic agents with CT contrast medium were as follows: unadministered contraindicated medications (95 cases, 76.0%), meaningless words (22, 17.6%) and administered by a clinical decision (eight, 6.4%). Reasons for other genitourinary organ and rectal agents with vasodilator were PRN (54 cases, 38.3%), administered by a clinical decision (42, 29.8%), unadministered contraindicated medications (29, 20.6%) and meaningless words (16, 11.3%). Reasons for NSAID with other cardiovascular drugs were PRN (65 cases, 69.9%), unadministered contraindicated medications (16, 17.2%) and local administration (13, 28.9%).

Conclusion We confirmed that certain medications were sometimes prescribed using an incorrect reason. Some clinicians input a reason that was something other than a PRN drug use, or entered a meaningless words. It is necessary to improve the system of entering the reasons why clinicians prescribe contraindicated drugs.

REFERENCES AND/OR ACKNOWLEDGEMENTS

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No conflict of interest.

4CPS-234 PHARMACIST INTERVENTIONS IN NEONATAL INTENSIVE CARE UNIT AND ASSOCIATED COST AVOIDANCE AND COST SAVINGS

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Background In neonates, frequent changes in dosing intervals and dosage can increase the risk of medication errors. In addition, patients in the Neonatal Intensive Care Unit (NICU) are highly dependent on total parenteral nutrition (TPN), which is one of the most important interventions made by pharmacists. Although the role of ICU pharmacists in improving clinical outcomes has been documented, there are currently few reports on the economic impact of such interventions in this country.

Purpose The purpose of this study was to analyse interventions made by a NICU pharmacist and describe the economic impact by calculating cost avoidance and cost savings associated with accepted interventions.

Material and methods From 1 March to 31 August 2016, a retrospective evaluation was conducted by analysing clinical intervention records from prescription review, TPN consults and Clinical Pharmacokinetic Consultation Service reports delivered by pharmacists in a tertiary hospital. Interventions were graded based on probable outcome severity by three independent pharmacist evaluators. This grade was used to calculate cost avoidance. Cost avoidance and cost saving from accepted clinical interventions were

calculated to show the economic impact of NICU pharmacists.

Results During the study period, a total of 608 clinical interventions were performed, TPN was involved in 482 (79.3%) interventions and the number of intervention activities related to prescription review was 81 (13.3%). The most frequent interventions related to prescription review were 'incorrect dose and interval (46.1%)', followed by 'incorrect administration schedule' and 'consult for medication information and treatment plan'. The prescriber's acceptance rate of pharmacist recommendations was 95.2%. Over the 6 months, total cost avoidance was 175,863,624 won and total cost saving was 75 033 won.

Conclusion This study showed the impact of a NICU pharmacist on medication safety and costs in a tertiary hospital. However, further study is needed to demonstrate the clinical pharmacist's contribution to the improvement of clinical and economic outcomes more comprehensively.

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4CPS-235 PARENTERAL NUTRITION-ASSOCIATED CHOLESTASIS AS AN EARLY-ONSET ADVERSE EFFECT IN ADULT PATIENTS

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Background Parenteral nutrition-associated cholestasis (PNAC) may occur in 25–100% of adult patients receiving long-term parenteral nutrition (PN).

Purpose To analyse the onset of PNAC in hospitalised adult patients and the possible risk factor associated.

Material and methods Observational, retrospective and longitudinal study that included adult patients who received PN for at least 5 days from January 2017 to September 2018 with normal serum level of alkaline phosphatase (AP), gamma-glutamyl transpeptidase (GGT) and total bilirubin before starting PN. The primary endpoint was defined as time to the onset of cholestasis established as elevation in GGT (>106.6 U/L) or total bilirubin (>1.8 mg/dL) or AP (193.5 U/L) + (GGT or bilirubin) that could not be explained by other causes. Possible risk factors were collected: gender, age and sepsis at initiation of PN, cyclic PN infusion, kcal/kg, balance between dextrose and fat and fat >1 g/kg/d at the onset of cholestasis or at the end of PN treatment in those patients who did not develop cholestasis. Statistical analysis was performed by Chi-square test for qualitative variables and student's *t*-test for quantitative variables using STATA.

Results One-hundred and fifty-six patients were included. 48.7% of patients developed cholestasis within a median of 6 (IQR=4) days. The results of possible risk factors were:

Conclusion PNAC is an adverse effect that not only happens in patients receiving long-term-PN, but also occurs in a high