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Opinion

Dosing in the neonatal intensive care unit

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Over the years, pharmacy has developed from a simple floor stock system to a complex unit dose, I.V. additive, and clinical pharmacy program. This development would have never been possible without the support of the nursing, medical, and administrative staff. The support of obtained slowly by developing services that increase the pharmacist's credibility as a team member concerned with the pediatric and neonate patients. These services include a unit dose program, I.V. additive program, drug information services, and pharmacy medication program. One area in which pharmacist does not obtain a background from generalized training is the area of pediatric dosing. Pediatric pharmacists must learn in clinical practice the proper dosing of the pediatric patient and neonate patient. The dose must be checked periodically. In the premature or newborn infant, the pharmacist must consider the immature renal and hepatic function so that he/she does not overdose initially and then underdose as the infant grows and matures. Neonates are a special group of children, they are less than 30 days, and within this group preterm babies (that means less than 37 weeks). Determining the correct dose for drugs used to treat neonates is a critically vital factor. Prematurity affects kidney and liver function and the proper adjustment of drug doses is crucial [1]. The absence of drug level necessitates the adjustment of drug doses and the presence of qualified oriented dependable pharmacists. Drug doses are not numbers, or decimals used within the therapeutic range. Neonatal Intensive Care Unit (NICU) needs a system for the calculation and preparation of drugs [2].

One example is a calculation of the total amount needed in the NICU for ampicillin use for one week

Dose * weight in Kg * frequency * number of babies * 7 days divided by the concentration of ampoule to find out the total number needed.

The second example is drugs used for infusion like Vancomycin

Dose * weight in Kg * frequency * number of babies * 7 days divided by concentration of vial to find out the total number needed.

Doses calculated from leaflets like normal immunoglobulin that is not mentioned by PNF, replacement therapy in primary immunodeficiency disorders/replacement therapy in secondary immunodeficiency disorders by I.V. infusion in neonate [3]. Consult product literature, using this type of immunoglobulin necessitates certain

procedures and several precautions regarding administration. So, the total dose is one gm/kg equal to 10 ml/kg from a product concentration of 100 mg per ml. To be administered in two steps: initial rate is 0.5 ml per kg over 30 min if no problems then a gradual increase up to 6 ml per kg per hour. The challenges will be the ability of pharmacists in this hard environment to calculate communicate, and to avoid drug interactions.

Conclusion: The pharmacist involved in the delivery of pharmacy services to a pediatric or neonatal patient population must be well trained as a generalized, that is, to understand all of the, modern basic pharmacy programs, such as unit dose and I. V. additives. Pharmacists must also have all the basic skills of general pharmacy practice, such as understanding compounding, drug incompatibilities, drug excretion, and dosing formulation.

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