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Neonatal and Paediatric Pharmacists Group, 9th Annual Conference

The 9th Annual Conference of the NPPG was held in Cardiff, Wales on September 19–21, 2003. There were approximately 150 delegates at the "Making the Right Start" conference. There was a lively session on research. The abstracts for four oral presentations are listed below:

01
Antiretroviral Instruction Leaflets for Children

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Objective: Usually, infants and children contract the HIV infection from the mother during pregnancy, delivery or breastfeeding: AIDS is a chronic disease. Effective treatment requires a combination of several different antiretroviral medications one to three times a day. It is a complex treatment especially for children. Patient compliance is a determining factor of the AIDS therapy. Adherence to medications among children and adolescents appears to be frequently suboptimal.[1,2] The major point of clinical pharmacy is to provide children and their families with knowledge, skills and tools to manage antiretroviral treatment.[3,4] The aim of this study was to elaborate antiretroviral instruction leaflets for children as an help to adjust to treatment.

Methods: First of all, we identified the more often prescribed antiretroviral drugs in our teaching paediatric hospital (for in and outpatients). Then, we selected information in drug data we needed to write leaflets. We contacted all laboratories and patient associations concerned. All existing documents concerning children, disease or other leaflets were reviewed. The instruction leaflets must be innovative, interactive and culturally appropriate. A drawer was contacted and elaborated them in collaboration with the pharmaceutical staff. All leaflets were validated by nurses, physician in charge of HIV children, a psychologist. They were tested on HIV young patients in general paediatric unit.

Results: We have considered seven oral solutions : zidovudine, didanosine, lamivudine, stavudine, abacavir, lopinavir-ritonavir and nelfinavir. None of the available documents from laboratories and associations corresponded to our objective. However, it inspired and helped us to choose size, communication support and targeted age bracket. For each drug chosen, instruction leaflets included drug easy identification (taste, bottle picture), use directions, specific drug toxicity symptoms and possible side-effects.

The selected age brackets were 3–6 years and 7–11 years. After nurses, physician, psychologist and pharmacists corrections, instruction leaflets were printed.

Conclusion: This study is an innovative HIV education program. The leaflets corresponded to a real attempt from patients and medical staff. Next step will be evaluating the impact of those leaflets on patient compliance and treatment understanding.

References

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02
A Survey of Pharmaceutical Care in Paediatric Intensive Care Units in the UK and Scandinavia

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Objective: Paediatric Intensive Care is a relatively new speciality with a wide range of pharmacy involvement. The aim of the questionnaire is to highlight the differences and similarities within some aspects of PICUs in the UK and Sweden.

Method: Following on from meetings of the PICU SIG around the country, a questionnaire was devised to investigate aspects of clinical pharmaceutical care within PICU. Data was also collected on some basic clinical areas, including the choice of treatment for gut protection, sedation and paralysis, and some aspects of post-op cardiac support.

Results: Twenty three out of twenty seven questionnaires were returned (85%). Funding for pharmacists varied from none to 5.6hours/bed/week with the average funded beds being 2hours/bed/week. Only 9/22 pharmacists attended daily ward rounds. 50% of units received a limited CIVAS service: 9 made savings by sharing vials between patients (predominantly with anti-infective agents) and only one unit provided inotropes, sedatives and electrolyte solutions. TPN was prescribed by the pharmacist, in consultation with medical staff, in 15 units. Only 4 units used new, dedicated lines for TPN and 17 units mix drugs with TPN at a Y site connection. Most combinations of glucose and sodium chloride were used as crystalloid, and 4 units used 4%/0.18% despite warnings concerning the risk of dilutional hyponatraemia. All but two units are using HAS as their preferred colloid. Non-nutritive feeds are used by all but one unit as gut protection in patients not feeding enterally. Since the withdrawal of cisapride only 4 units use pro-kinetics, domperidone or erythromycin, routinely. Morphine and midazolam are still first line sedation and analgesia except for two units that use clonidine. Most units are using clonidine as second line or as part of a weaning strategy. Only six PICUs have written weaning guidelines. 10 units use vecuronium infusions, 11 use pancuronium and/or atracurium, and 10 units have guidelines for regular review of paralysis. Propofol use is restricted to short procedures or over 16 years unless there are exceptional circumstances. Replies were received from 8 cardiac units of which 6 are using milrinone IV, although only enoximone is given orally. 5 units use phenoxybenzamine. NO is used by all cardiac units but sildenafil is used by 2 units and epoprostenol by 1 to control pulmonary hypertension.

Conclusions: This survey is inevitably only a starting point for many discussions, audits and collaborations between PICUs. There is a wide variation in the support which pharmacy provides to PICUs, both clinically and technically. Further work is required to investigate the role of pharmacy in expenditure control and in clinical risk management.

03
Use and Monitoring of Maintenance IV Fluids in Derbyshire Children's Hospital

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Objective: To identify children requiring maintenance IV fluids and review the fluids administered in association with their clinical condition and U&E results. The choice of IV fluid for maintenance and replacement therapy in children has recently been the subject of both literary and NPPG discussions. Sodium chloride 0.18%, glucose 4% has traditionally been the IV maintenance fluid of choice for children. *Medicines for Children*[1] continues to advise the use of this hypotonic fluid. However, concerns have been raised about the risk of hyponatraemia with hypotonic fluids; particularly in children at risk of increased anti-diuretic hormone release e.g. post-operatively, in pain, CNS disturbances.[2] At Derbyshire Children's Hospital (DCH), specific fluid guidelines are in place for only a few selected conditions e.g. Diabetic Keto-Acidosis and pyloric stenosis.

Method: Over an 8-week period during April-June 2003, children receiving IV fluids were identified. Their admission sheet, fluid prescription chart and entries on the pathology computer system were used to collect the following data:

- Reason for admission
- Initial fluid administered, any changes to fluid
- U&E results

Medical notes were reviewed retrospectively where necessary. A Specialist Paediatric Registrar was consulted on appropriate standards to use for data analysis. The following standards were set – sodium chloride 0.45% should be given if Na≤138mmol/l and potassium should be given if K≤3.6mmol/l

Results: 51 children were included in data analysis:

- 67% received sodium chloride 0.18%, glucose 4% (+/- potassium) as initial fluid
- 63% had their initial fluid changed. In half of these cases, the change appeared to be in response to U&E results
- U&Es were checked for 94% of children and results were available prior to fluid prescription in 16 (31%) cases, 11 of whom (69%) received appropriate fluids
- 35 (69%) children were considered to be at increased risk of hyponatraemia. Low sodium levels were reported on the first U&E sample for 15 (43%) children in this group – 8 (53%) of whom received sodium chloride 0.18%, glucose 4% as initial fluid

Conclusions: The majority of children requiring IV fluids at DCH, including those at increased risk of hyponatraemia, are initially prescribed sodium chloride 0.18%, glucose 4%. Whilst no clinical problems were apparent, low U&E results were clearly responded to in only 50% of cases, and this was sometimes delayed. The introduction of fluid and electrolyte prescribing and monitoring guidelines within DCH, with consideration of the use of sodium chloride 0.45%, glucose5% as routine maintenance fluid for children with normal renal function, may help to optimise fluid and electrolyte management.

References

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04
Medication Error Risk in the Derbyshire Children's Hospital.

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Objective: To identify potential process errors, high-risk areas, drugs or procedures in the medicines management processes in the Derbyshire Children's Hospital. To explore staff attitudes towards the current Trust medication error reporting scheme. To determine potential methods of reducing the risk of errors occurring in the future.

Methods: Four methods were employed for a 6week period in summer 2002:

1. audit of prescribing and pharmacist annotation of prescription charts in all paediatric areas for compliance with Trust medicines code standards
2. observational studies of nurses administering drugs to children in each of the clinical areas of the Children's Hospital.
3. survey of pharmacy, medical and nursing staff opinions of the current medication incident reporting scheme
4. data collection of pharmacist and nursing interventions on prescriptions

Results: A number of areas of concern were highlighted by the different methods. Prescribing and pharmacist annotation examples: poor allergy documentation, 77% prescriptions discontinued incorrectly, use of non-approved drug names and abbreviations, unclear doses and frequencies to varying degrees depending on area, 88% signatures illegible. Nurse observation studies: poor double checking procedures, patient ID checking, documentation of missed doses, use of PGDs, inhaler and aseptic technique, knowledge of administration techniques via PEG tubes. Medication incident reporting scheme opinion survey: 73% of staff had completed a form (mainly nursing and pharmacy staff). 19% staff would feel more willing to report errors if the form was anonymous. 50% of responding consultant paediatricians were unaware of the scheme. Intervention study: pharmacists made 98 interventions in the 6 week study period including three10-fold errors. Nurses made 31 interventions.

Conclusions: A number of areas of risk were highlighted. Recommendations to reduce the future potential for these to lead to an error have been made to the paediatric directorate management board. Measures are currently being introduced. These include training of medical, pharmacy and nursing staff in a number of areas and redesign of the paediatric prescription chart. It can be seen that pharmacists and nurses are protecting patients from prescribing errors by regular interventions. The Trust medication error reporting scheme generally appears to be accepted and used by most except medical staff.