

**The use of Nebulised
Ribavirin in the clinical
setting.
Concerns and Myths!**

Working Group

Background

- Ribavarin - treat respiratory syncytial virus RSV
- Used since 1987
- Stops replication of virus- prompt treatment
- Administered as a nebuliser, IV or oral
- Not licensed in adults!! Is in paediatrics
- Only treatment for RSV
- Differing practice- common themes

Literature

- Many studies comparing Drug usage and differing pts
- Khama et al (2007) 50% pts died when RSV progressed from URTI to LTRI
- Agree ribavarin is beneficial -Allogeneic tx and GVHD
? Neutropenic pts
- Diagnosing early ? Pre-emptive swabs 38% had RSV including some in summer months- treat pts with symptoms
- Small but clear amount evidence for hospital workers and risks involved

Working group

- Support
- Problems with administration
- Differing practice-why?
- Consolidate best practice
- Create a guidance document and educational DVD.

Concerns/frustrations

- Can make you sterile
- Will harm my unborn baby
- Red/itchy eyes
- Time consuming
- Difficulty setting up device
- < time spent with pts
- Can not go in the room if nebuliser on
- Patients are uncomfortable/distressed
- Nebulised crystals are dangerous
- Will cause an asthma attack

Teratogenic effects

- Drug is Teratogenic in rabbits and rodent species BUT not in primates
- No evidence in humans -2 case of cleft pallet - family history
- Ribavarin is contraindicated in pregnant women because of its unassessed Teratogenic potential
- Rodriguez (1987) 19 nurses exposed to ribavarin for 20-35hrs over 3 days only 2 nurses wore a mask on 1 day nurses very unlikely to be exposed for this long due to TDS regime
 - Not detected in erythrocytes, plasma or urine

Erythrocytes

- Known build up of drug in patients red blood cells
- Linn (1995) 14 volunteers
 - Exposed to high concentration 10% of dose and 1%
 - Concluded- Typical occupational exposures to ribavirin (1%), without recommended protective measures results in undetectable or barely detectable levels 0.1%
 - 1% of levels reported to be toxic to laboratory animals

Personal Protective Equipment (PPE)

- Apron
- Gloves –dermal absorption minimal
- Mask FFP2 or FFP3 - FIT testing
- Swine flu FFP3 filters particle size 0.1 microns ribavirin
1.7 microns FFP2 0.3- patent for 8 hours
- Goggles - contact lenses/glasses
- Aim is to keep exposure to minimum
- In Studies nurses did not wear PPE

.....if you wear all of the above is there a risk?

The room

- Negative pressure or neutral pressure
- NEVER POSITIVE PRESSURE room
- Crystals are the nebulised product so particle size are too big to absorb – no risk
- Negative pressure room less visible build up - due to air changes
- Neutral room- obvious crystals/'smoke'

Room continued

- Signage on door for other staff working on ward
- Can enter the room when nebuliser is running
 - wear appropriate PPE

Patient care

- Staff find procedure ‘a pain’
- Need to understand equipment
- Patients find nebuliser uncomfortable 18hrs vs. 3x 2hrs* (off label)
- Knowledge when to switch from nebulised to IV (unlicensed)
- Explain to patients time framework 3-7 days

*Englund et al

Knowledge is power

- Read the material
- Talk to other centres
- Look at literature
- Training from available resources
 - Clinical Educators
 - MEDA Medical Department
- Mask fitting
- Understand routes of absorption

Known Teratogenic Drugs

- Chemotherapy
- Ganciclovir/foscarnet
- Septrin
- MMF
- Campath
- Thalidomide

.....etc etc etc!

Acknowledgements

- **Mrs Lorraine Donovan**
 - Team Leader Haematology, University Hospital of Wales.
- **Michaela Fairest**
 - Clinical Procurement Specialist, Sheffield Teaching Hospitals NHS Trust.
- **Mrs Leona Graves**
 - Deputy Clinical Governance Coordinator in specialised cancer, Medicine and rehabilitation,
 - Sheffield Teaching Hospital Trust
- **Mrs Noreen Lewis**
 - Haematology Lead Nurse, University Hospital of Wales
- **Miss Suzanne Liebersbach**
 - Senior Sister Haematology and Transplant, St James Hospital, Leeds
- **Miss Sarah O'Connell**
 - Ward Sister Haematology, University Hospitals Leicester.
- **Miss Rachel O'Donnell**
 - Lead Pharmacist, BMT Unit, Bristol Royal Hospital for Children.