Trafford Local Care Organisation

Manchester Local Care Organisation

NHS Manchester University NHS Foundation Trust

NTM- A Manchester experience

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What are we?

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- Manchester and Trafford Local Care Organisation (MLCO, TLCO) commissioned service
- MFT have 5 funded posts
- Admission prevention / secondary care step down (reduced length of stay)
- Primary and Secondary care referrals
- City Wide Service

The Service

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- 24 experienced IV specialist nurses
- 7 days per week 8am – 10pm
- Referrals: Mon - Sun 8 am-8 pm
- Admission avoidance / Reduced LOS
- OD and BD / elastomeric devices / self admin
- Weekly infection specialist and pharmacy MDT
- Condition / blood result monitoring
- Line / cannula insertion and aftercare
- Facilitation of out of area referrals

MFT Specialties

- Level 3 intensive care (Adult and Paediatric)
- Level 3 Neonatal intensive care
- Cardiothoracic intensive care x 2
- ECMO
- Cardiac transplant
- **Renal Transplant (Adult and Paediatric)**
- Regional Burns unit (Adult and Paediatric)
- Haematology and Bone Marrow transplant (Adult and Paediatric) incl CAR-T
- **Hepatobiliary surgery**
- **Orthopaedics (Adult and Paediatric)**
- **Vascular surgery**
- Regional Trauma unit
- Cystic Fibrosis unit (Adult and Paediatric)
- **TB and NTM team**
- HIV services
- OPAT
- **Endocarditis service**
- Obstetrics and Gynaecology
- Ophthalmic surgery
- Tertiary metabolic medicine (Paeds)
- Neurosurgery (Paeds)
- Tertiary maternity
- European centre for EPS surgery

Non tuberculous mycobacteria (NTM)

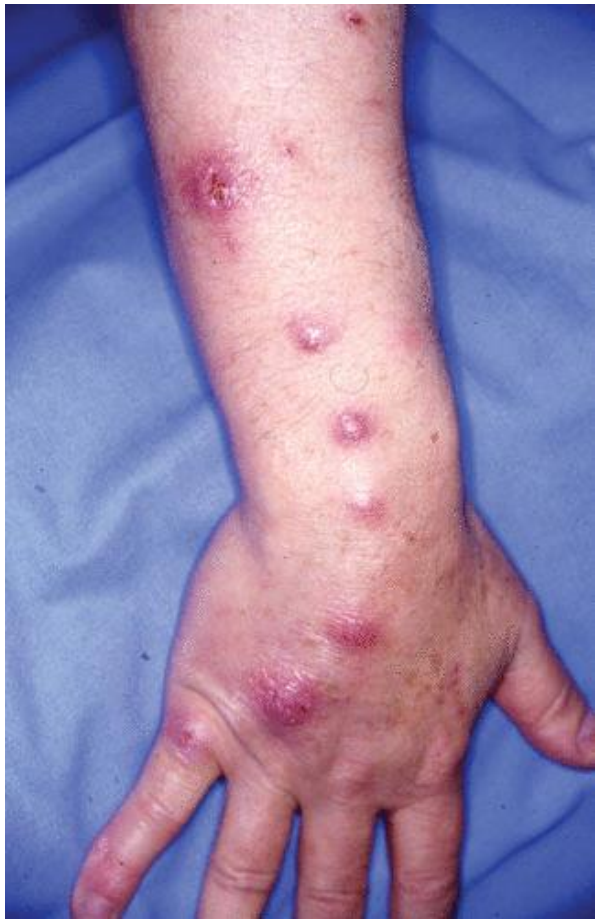
- Nontuberculous mycobacteria (NTM) are mycobacteria other than M. tuberculosis (the cause of tuberculosis) and M. leprae (the cause of leprosy). NTM are also referred to as atypical mycobacteria, mycobacteria other than tuberculosis (MOTT), or environmental mycobacteria.

- Although anyone can get an NTM infection, NTM are opportunistic pathogens placing some groups at increased risk, including those with underlying lung disease or depressed immune systems. These pathogens are typically not transmitted person-to-person. However, person-to-person transmission of M. abscessus has been reported in patients with cystic fibrosis.

- NTM are environmental organisms that can be found in soil, dust, and water including natural water sources (such as lakes, rivers, and streams) and municipal water sources (such as water that people drink or shower in). NTM can form difficult-to-eliminate biofilms, which are collections of microorganisms that stick to each other, and adhere to surfaces in moist environments, such as the insides of plumbing in buildings.

https://www.cdc.gov/hai/organisms/nontuberculous-mycobacteria.html

My favourite



https://journals.asm.org/cms/10.1128/microbiolspec.tnmi7-0038-2016/asset/b6999fab-eb03-4a72-b568-64e81c63d901/assets/graphic/tnmi7-0038-2016-fig2.gif

April 21- May 22

- Total of 9 patients treated across MCR-IV
- 7/9 were MAC (*M. avium intracellulare* complex)
- 2/9 were *M. abscessus*

- 7/9 were pulmonary disease
- 1 was septic arthritis (wrist)
- 1 was an ophthalmic infection

- 2 with immunocompromise (HIV and dermomyositis, prev MMF/ritux)

Regimes

- MAC
  - Amikacin 1g-1250mg x 3 week
  - Rifampicin
  - Ethambutol
  - Azithromycin
- *M abscessus*
  - Amikacin 1g-1250mg x 3 week
  - Imipenem 1g iv BD
  - Tigecycline 50mg BD
  - Azithromycin

Outcomes

- 2 died
- 2 had permanent hearing loss
- Eyesight loss in ophthalmic infection, b/g congenital glaucoma

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‘Tom Gorsuch Special’

- Email received 27th Jan 2022
- Started with the words ‘this will be difficult’…

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The Challenge

- Patient with severe and progressive M. abscessus pulmonary disease
- She is elderly, frail, has bad COPD
- Lives in Partington (miles away) - no access to a car.
- COVID-phobic – declined hospital admission
- Has a pretty resistant organism – limited options
- Loosing weight rapidly - BMI now about 17
- High risk of side effects, particularly nausea in the intensive phase and toxicity to ears/kidneys.

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The Challenge

- Treatment Plan
- Intensive phase (minimum of 4 weeks)
  - iv amikacin (od)
  - iv imipenem (bd)
  - iv tigecycline (bd)
  - oral azithromycin

  THEN for as long as possible (maybe 6 months)
  - amikacin (iv 3x weekly or possibly nebulised) if tolerated,
  - azithromycin.

  Further oral treatment (clofazimine) 18 months /indefinitely

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The Challenge

Travel time:- 2 hours 40 min

- 40 mins from Northenden base (1 hour 20min x 2)

Morning Visit: 2 hours 15 mins

- Set up time – 10 minutes
- iv amikacin (Once Daily) – 30 min infusion
- iv imipenem (Twice Daily) – 1 hour infusion
- iv tigecycline (Twice Daily) – 30 min infusion
- Take down – 5 mins

Evening Visit: 1 hour 45 mins

- Set up time – 10 minutes
- iv imipenem (Twice Daily) – 1 hour infusion
- iv tigecycline (Twice Daily) – 30 min infusion
- Take down – 5 mins

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More Challenges

6 hours 40 mins

+ blood drop offs (Wythenshawe hospital)

Amikacin needs Therapeutic Drug Monitoring

Trough levels (pre dose) and Peak levels (1hour post amikacin)

BD slots – 3 for each locality

Never used imipenem in the community

Lone workers – no second checker

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Even More Challenges

- Significant IV fluid burden, probably close to 1L per day overall, considering frail/underweight status.
- So may need to advise her about managing her usual oral intake, be vigilant for overload etc.
- Tigecycline - if N&V cannot be controlled with anti-emetics then slowing the rate of infusion can be effective. But then would need to factor in the extra time required e.g. additional 30-60mins per day.
- Might need to slow the infusions if any sign of oedema.

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What happened

17th Feb - Joint home visit to assess patient and home environment (had been postponed as patient had norovirus)

28th Feb - Audiology appointment – base line hearing

1st March – Dual lumen PICC inserted

2nd March – 2 week staff plan made (joint visits for each staff members first visit)

4th March – medusa guidelines / crib sheet with full plan given to all staff / in patients home

5th March IV infusion pumps, drips stand, consumables taken to her home (there were a lot)

YELLOW means first time GREEN means have visited/administered before

Day	Morning	Evening	note	Action
Monday	Lorrie / Naomi Imipenem Tigecycline amikacin	Tracey / Amy W Imipenem tigecycline		
Tuesday	Tracey / Amy W (takes blood to the Trust urgent) Imipenem Tigecyline **NOT amikacin**	Tracey / Teresa Imipenem tigecycline	Needs trough amikacin level (0-4 hours prior to dose) Amicakin will need to be given ASAP once level is back	Alex will organise someone to go back and give amikacin ASAP once result is back
Wednesday	Amanda / Rachael B Imipenem Tigecycline amikacin	Naomi / Julia Imipenem tigecycline		
Thursday	Alex / Rachael B Imipenem Tigecycline amikacin	Tracey Imipenem tigecycline		
Friday	Teresa / Julia Imipenem Tigecycline amikacin	Alex Imipenem tigecycline		
Saturday	Amanda/ ? Dawn Imipenem Tigecycline amikacin	Amanda /Amy C Imipenem tigecycline		
Sunday	Lorrie /Nic Imipenem Tigecycline amikacin	Paul / Nic Imipenem tigecycline		

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Result

Ran into a few problems

U&E and clotting

Hypotension

Accidently took double dose of oral azithromycin

Imipenem stopped 2 weeks early then tige stopped

IV Amikacin continued until June - then nebulised

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Take home messages

- Preparation and time
- Clear communication
- Baseline audiology and constant follow up
- Flexibility
- TDM
- Good pharmacy input