

Renal medicine*

A Implications of an influenza pandemic

Specific risks to renal patients of influenza infection and its complications

In normal influenza infection, patients at increased risk of complications are considered to be:

- ▶ those aged 65 years or older
- ▶ long-stay residential care home residents
- ▶ immuno-compromised patients
- ▶ those with:
 - chronic respiratory diseases
 - chronic heart disease
 - chronic kidney disease (CKD)
 - nephrotic syndrome and established renal failure
 - chronic liver disease
 - diabetes.

It should be noted that, for kidney patients, it is hard to find good published evidence that renal patients are indeed at such increased risk.

Patients with pre-existing chronic kidney disease are at risk of pre-renal exacerbation through pyrexia, poor fluid intake from anorexia and sore throat, diarrhoea (which has been reported in a high proportion of avian and swine flu sufferers), and non steroidal anti-inflammatory drugs used by patients for treatment of myalgias and headaches.

Thus renal patients, many of whom have the above listed comorbidities or risk factors, are likely to be more at risk of serious morbidity and mortality during a pandemic. This will result in additional and perhaps disproportionate pressure on renal units where the skills for caring for these patients are concentrated.

Staffing issues

All hospital doctors, whatever their base specialty, are likely to be involved in the care of patients with influenza. Nephrologists (because they have general skills) will need to be prepared to help out in other clinical areas where possible.

Modelling suggests that small organisational units (5 to 15 staff) or small teams within larger organisational units are likely to suffer higher percentages of staff absences – up to 30–35% over a two- to three-week period at the local peak. This may have a significant impact on the running of satellite dialysis units.

*A longer version of this guideline which includes advice about the use of antiviral agents in patients with CKD can be found at: www.renal.org/pages/media/download_gallery/RenalFluPlanrev070709.pdf

Inpatients

Renal unit beds will be in great demand. Dialysis patients are more at risk of getting influenza infection and, when infected, of suffering a more severe clinical course. Unless they need ventilatory support, the inpatient care of such patients will need to be in an area where dialysis equipment and the appropriately trained staff are located. The tension between demands on the hospital trust to care for its local district general hospital population and of the renal unit to provide care for a wider catchment area will be significantly more acute than usual.

Haemodialysis

Challenges to the ongoing provision of maintenance outpatient haemodialysis for patients in established renal failure include:

- ▶ staff shortages affecting the main unit and satellite units
- ▶ difficulty cohorting infected patients when attending for dialysis
- ▶ exposure of staff to infected patients who need regular treatment
- ▶ risks to hospital transport
- ▶ risk to supplies and their delivery
- ▶ carer illness implications for patients on home dialysis programmes
- ▶ possible shortage of technicians.

Peritoneal dialysis

Peritoneal dialysis (PD) patients have the relative advantage over unit-based haemodialysis patients of not needing to attend hospital regularly. This will reduce their exposure to infection. However, the specific risks they face are:

- ▶ uncertainty over delivery of PD supplies
- ▶ nursing and medical support
- ▶ increased risk of infection through reduced immunity.

It will also be difficult to maintain a service that can start new patients on PD, mainly through a lack of nurses to provide the intensive training required.

Transplantation programmes

It is unlikely that there will be the human and hospital resources during a severe pandemic for living or deceased donor kidney transplant programmes to operate. Given the multiple personnel involved in successfully organising and seeing through a renal transplant, the pressures on the hospital facilities (particularly beds and critical care), and the enhanced risk of infection acquired in the peri-procedural period, it is possible that transplant programmes will need to be temporarily suspended.

B Recommendations for renal unit planning

General measures

- ▶ Register all contact details (including mobile phone numbers, and email addresses where available), for all dialysis, transplant, other immunosuppressed and low-clearance patients, to ensure failsafe communication lines, and enhance the potential for virtual or remote disease management.
- ▶ Prevent cross-infection in renal unit areas through segregation and cohorting of influenza patients in clinical areas. Such cohorting will be required whenever possible on wards, haemodialysis units, and in outpatient areas. Units will need to consider how they can achieve this within the constraints of their unit's design and flexibility.
- ▶ Follow local and national guidance on the prevention of spread of infection through protective clothing, masks, barrier nursing etc.
- ▶ Be prepared to have other parts of the renal unit adapted for inpatient activity if feasible.
- ▶ Identify key supplies, and ensure supply lines are maintained. This is particularly the case for renal unit haemodialysis supplies. It is assumed that peritoneal and haemodialysis (hospital and home) suppliers will have contingency plans in place for a pandemic, but it is advisable for renal units to check that these are in place with their suppliers.

Inpatients

- ▶ Treatment and admission criteria should be transparent and applied in a consistent and equitable way, utilising available capacity for the most seriously ill. Such criteria are likely to be developed nationally or on a strategic health authority basis, but specialist medical staff will probably need to contribute to daily triage and management decisions in any period when the demand for emergency beds exceeds the supply.
- ▶ Mechanisms for rapid discharge and follow-up where necessary should be established.
- ▶ Staff should be prepared to acquire additional skills at short notice for helping with the care of critically ill patients, many with acute respiratory failure, as intensive care units will be overwhelmed. Such additional training might include the administration of non-invasive ventilation.
- ▶ There will be an expectation that all elective admissions should be cancelled. Renal units will need to decide which non-emergency admissions they consider are still essential to prevent significant subsequent morbidity.
- ▶ Routine renal admissions that will need to be cancelled/postponed until the pandemic subsides include:
 - renal biopsies, unless there is (a) rapidly deteriorating renal function with no other apparent cause, or (b) nephrotic syndrome. It may prove exceptionally difficult to admit patients even with these presentations, and such patients may need to be treated 'blind', based on the balance of clinical probabilities

- renal artery stenting, unless there is known tight stenosis in a single kidney/bilateral critical renal artery stenosis with deteriorating function, or severe hypertension unresponsive to full medical treatment
- vascular access surgery, unless there is a critical shortage of central veins for a catheter. Whether cancelling such surgery is necessary will depend on the local pressures on the trust's beds and staff, and individual cases based on the clinical urgency. It may be that day-case surgery for arteriovenous fistula creation could keep going if the facility and surgical staff are available (which is likely, as most other routine surgical work is going to be cancelled)
- renal transplant surgery (see above)
- coronary angiography for transplant work-up
- parathyroidectomy, unless there is severe hypercalcaemia unresponsive to medical treatment.

Haemodialysis

- ▶ Consider selecting suitable patients for twice-weekly treatment, in the event that staffing levels in dialysis units cannot support three times weekly haemodialysis for all. Individual units will need to assess the safety of such an approach, in part determined by knowledge of residual renal function.
- ▶ Consider setting up or expanding night shifts for haemodialysis in the main hospital unit. As a result of (a) reduced staffing levels in satellite units, and (b) influenza infection of home haemodialysis patients or their carers, there is likely to be a significant increase in patients needing to receive haemodialysis in the main hospital unit.
- ▶ Cohort infected/uninfected patients separately wherever possible on the dialysis unit.
- ▶ Refresher/induction courses for renal nurses not experienced in haemodialysis may be required to ensure there are enough such nurses to provide haemodialysis in main units/satellites.
- ▶ Cancel routine outpatient visits.
- ▶ Consider asking home dialysis patients and their carers to provide dialysis for non-infected hospital patients.

Peritoneal dialysis

- ▶ Ensure with suppliers that there are contingency plans in place to ensure delivery of PD fluids to patients' homes.
- ▶ Patients may benefit from stockpiling fluids where possible (to be discussed with suppliers).
- ▶ Cancel routine outpatient appointments, but arrange for essential blood tests to be done, locally wherever possible.

Outpatients

- ▶ It is possible that all previously arranged outpatient clinics will be cancelled by the time UK alert level 3 (see Table 1, p2) is reached, and 'Choose and Book' will be suspended. New emergency clinics will need to be established, to see only those patients who genuinely need to attend the hospital for specialist review as opposed to distance/virtual/primary care management.
- ▶ Stable general nephrology, transplant, dialysis and low-clearance patients should be managed by remote blood test monitoring (when required) without needing a hospital visit. A lower frequency of blood testing may need to be accepted if phlebotomy services are compromised.
- ▶ Each renal unit will need to decide which criteria to use for determining the patients who genuinely need to be seen, but these criteria should be strict and centre on preventing or treating rapid progression of their underlying renal disease, and avoiding life-threatening complications of treatment (particularly recently commenced immunosuppressive regimens).
- ▶ Suggested categories of patients warranting hospital outpatient review (Yellow Follow-up Card) are:
 - new referrals with nephrotic syndrome, rapidly worsening renal impairment, acute multi-system disease with renal involvement, severe hypertension (if nephrology provides this service in the trust)
 - specialist long-term renal patients (transplant, low-clearance, other immunosuppressed, dialysis) who are acutely unwell, following a telephone consultation
- ▶ An effective emergency administrative structure will need to be set up in renal units. This is required for (a) effective communication with patients during the pandemic, and (b) to provide effective virtual clinical management. Considerations include:
 - setting up patient email address and mobile and home phone lists for efficient communication of general and personal advice and instructions
 - setting up dedicated departmental emergency phone lines and email addresses for patients to access the renal department directly. Trusts with effective websites could be rapidly adapted to direct patients to the appropriate pages for their condition(s)
 - establishing rotas for medical, nursing and clerical staff to man the virtual clinics, review results and liaise with patients.

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