Acute HIV infection after initiation of post exposure prophylaxis following sexual exposure: reasons, challenges and suggested management

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Background

- Combination approaches to HIV prevention remain a high public health priority and in many countries includes the provision of post exposure prophylaxis following sexual exposure (PEPSE)
- Current guidelines from the United Kingdom, Europe and the United States recommend starting PEPSE within 72 hours, with triple therapy *(BASHH 2011; EACS 2014; CDC 2005)*
- Few recommendations exist to guide management of acute HIV infection after initiation of PEPSE, or in the follow up period. Only US guidelines state ***'continuing ART for >28days might be prudent as such early treatment might slow progression of HIV disease, and referral to HIV treatment specialists is recommended.'***
- We present a case series of patients in the UK, newly diagnosed HIV positive following the initiation of PEPSE

Objectives

- To describe a cohort of patients diagnosed HIV positive after PEPSE initiation or in the follow up period
- To inform optimal management of acute HIV diagnosed whilst on PEPSE or in the follow up period

Methods

This was a multicentre retrospective case note review of patients fitting either of the following criteria:

1. PEPSE failure: a negative POCT and 4th generation laboratory test at PEPSE initiation with HIV diagnosed whilst on PEPSE or in the 12 week follow up period or

2. Delayed diagnosis of acute HIV infection at PEPSE initiation: a negative POCT at PEPSE initiation, but subsequent reactive 4th generation laboratory test once PEPSE already started

Limitations:
This was an ad-hoc collection of new positive diagnoses after PEPSE initiation based on clinical referral. Therefore this is not a true representation of the incidence of acute HIV diagnoses after PEPSE initiation

Results

Table 1: Demographics, date of HIV diagnoses, CD4/VL results at baseline, resistance tests, and ART outcomes.

Age	Gender	Risk Group	Previous PEP	Date PEP started	Date HIV positive	Assay used	Diagnosed on PEP?	PEP failure?	CD4	VL	Resistance at diagnosis	Continued ART?
41	M	MSM	Y	29/10/2013	29/10/2013	Lab Abbott Ab/Ag	Y	N	1170	16595	N	Y
31	M	MSM	N	16/07/2013	16/07/2013	Lab Abbott Ab/Ag	Y	N	427	5181	N	N
37	M	MSM	NK	26/05/2014	26/05/2014	Lab Abbot Ab/Ag	Y	N	935	<20	N	N
45	M	MSM	NK	16/01/2011	16/01/2011	NK	Y	N	812	NK	K103N	N
29	M	MSM	N	25/07/2014	25/07/2014	Lab Abbott Ab/Ag	Y	N	472	752385	N	Y
33	M	MSM	Y	17/06/2014	17/06/2014	Lab Abbott Ab/Ag	Y	N	1038	10984	N	Y
36	M	MSM	N	05/09/2013	03/10/2013	Lab Roche Ab/Ag	Y	N	584	20300	N	Y
25	M	MSM	N	27/01/2014	17/03/2014	Lab Abbott Ab/Ag	N	Y	605	21529	N	N/A
33	M	MSM	Y	20/07/2013	23/07/2014	Lab Abbott Ab/Ag	Y	N	610	6783	N	Y
30	M	MSM	N	14/10/2014	18/10/2014	Lab Abbott Ab/Ag	Y	N	981	188829	N	Y
40	M	MSM	N	30/07/2013	30/07/2013	Lab Abbott Ab/Ag	Y	N	1054	2092	N	Y
31	M	MSM	N	09/10/2012	09/10/2012	Lab Abbott Ab/Ag	Y	N	639	41132	N	N
28	F	Hetero	N	23/11/2013	26/11/2013	Lab Abbott Ab/Ag	N	N	1017	5141	N	N/A
24	M	MSM	N	17/08/2012	17/08/2012	NK	Y	N	629	2981	T215D	Y
46	M	MSM	N	26/05/2014	28/05/2014	Lab Abbott Ab/Ag	Y	N	633	1245	N	Y
26	M	MSM	NK	15/06/2014	15/06/2014	Lab Abbott Ab/Ag	Y	N	666	31168	N	Y
47	M	MSM	N	29/09/2005	29/09/2005	Lab Abbott Ab/Ag	Y	N	261	NK	NK	N
27	M	MSM	NK	12/09/2011	12/09/2011	Lab Abbott Ab/Ag	Y	N	467	63117	N	N
22	M	MSM	Y	01/07/2014	01/07/2014	Lab Abbott Ab/Ag	Y	N	629	923	N	Y

Patient demographics

19 patients were identified: 18 male (all MSM); 1 female. The average age was 33 years old (range 22-47 years). 95% of patients were of White ethnicity.
6/19 (32%) had bacterial sexually transmitted infections (STIs) diagnosed within the 12 months preceding PEPSE. There were no patients co-infected with hepatitis B or C at the time of HIV diagnosis.

PEPSE access and previous HIV testing

Figure 1

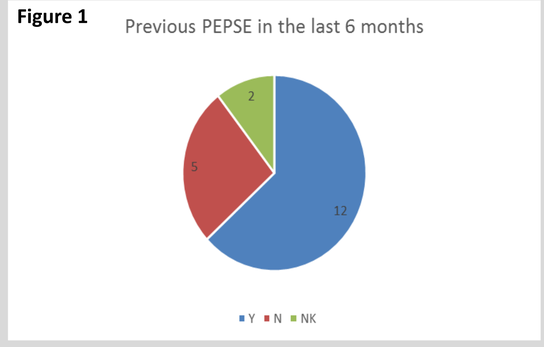
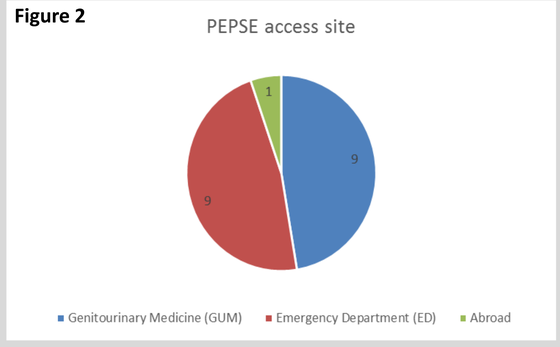


Figure 2

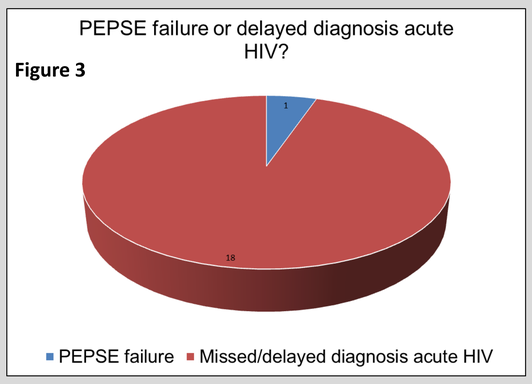


- All patients accessed PEPSE within 72 hours, and all received standard triple therapy of 2 NRTIs and a boosted PI as per local guidelines at the time
- 12 patients (63%) had a negative HIV test in the 6 months prior to accessing PEPSE
- 4 patients had taken PEPSE in the preceding 12 months

HIV diagnosis

17/19 patients had a 4th generation laboratory test at PEPSE initiation. 4 patients (21%) also had a point of care test (POCT) all through genitourinary medicine services and all of which were negative.

Figure 3

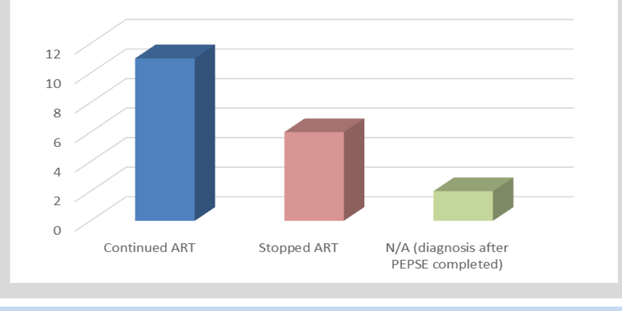


- 16 patients starting PEPSE were subsequently confirmed with acute HIV once lab tests were available
- 2 patients diagnosed in retrospect: 1 Ab/Ag negative on lab testing at PEPSE initiation with HIV viral load on same sample >20,000 copies; 1 also Ab/Ag negative but retrospective testing on same sample PCR positive
- 1 patient likely represents PEPSE failure: diagnosed 19 days after completion PEPSE (HIV p24 weak +, RNA +)

Therefore, from 19 patients in our case series, 18 (95%) were HIV positive at PEPSE initiation

ART outcome

Figure 4



- Of the 17 patients diagnosed whilst on PEPSE, 11 (65%) opted to continue ART once the diagnosis was confirmed. (of these 9 patients switched to recommended first line regimens)
- 6/17 patients stopped PEPSE after HIV+ diagnosis. This was not influenced by CD4 count or HIV viral load
- Baseline drug resistance tests were conducted in 17 patients: 2 had significant drug resistant mutations: K103N, T215D; unrelated to PEP

Conclusions

- From our case series 95% patients were unknowingly HIV+ at PEPSE initiation reflecting diagnostic challenges
- We recommend all POCTs should be accompanied by 4th generation laboratory tests in parallel as the POCT missed acute infection in this cohort
- Acute HIV diagnosis after PEPSE initiation represents a unique opportunity for very early ART with increasing evidence supporting immunological benefits
- Inconsistencies in the management of acute HIV in the context of PEPSE reflects lack of clinical guidance available in the UK
- **We recommend continued ART until urgent review by an HIV specialist in line with current US guidelines**