

Brief Communication

Optimal Delivery of HAART During Hospitalization

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Interventions to improve adherence to HAART have mainly been focused on patients in outpatient settings. In this article, recommendations on how to improve the delivery of HAART during hospitalization are formulated. [AIDS Reader. 2004;14:198-200]

Key words: HIV/AIDS • HAART • Adherence • Hospitalization

The perspectives of persons living with HIV infection have changed dramatically over the years. Thanks to the introduction of HAART, patients now have a better quality of life and hospital admissions for opportunistic infections have decreased dramatically.¹ However, HAART is only effective when patients adhere to the treatment regimen. Adherence is not easy, because treatment regimens remain complicated and antiretroviral agents are often associated with side effects. Poor adherence leads to the development of drug resistance.² For these reasons, adherence to HAART has become a topic of increasing research interest,³⁻⁹ and a variety of interventions have been proposed to improve adherence.^{3,10-15} So far, research and interventions have focused mainly on patients in the outpatient setting. In this report, we make recommendations on how to improve the delivery of HAART during hospitalization.

PATIENT-RELATED PROBLEMS

Outpatients should receive maximum psychosocial support and counseling to achieve optimal adherence to HAART, thus reducing the

need for hospitalizations. If patients are hospitalized, a multidisciplinary team including physicians, nurses, psychologists, dietitians, and pharmacists is needed to support patients in achieving optimal adherence. Cooperation with community and volunteer services should be considered.

Culturally sensitive services must be developed, and patients should be empowered to speak for themselves. If possible, the partner and family of the patient should be included in the therapy counseling. Patients must be well prepared for starting antiretroviral therapy during their hospitalization.

For those who are severely ill and who need treatment for opportunistic infections or malignancies, the start of antiretroviral treatment can be delayed; treatment of life-threatening opportunistic infections must be the priority. For patients receiving HAART who have severe side effects, such as nausea and vomiting, the temporary interruption of HAART should be considered, taking into account any differences in pharmacokinetic half-lives among the antiretroviral agents in the regimen. It is better to interrupt a

HAART regimen than to have a patient taking only part of the prescribed treatment.

HEALTH CARE PROVISION-RELATED PROBLEMS

There are various problems in achieving optimal delivery of HAART, according to the hospital staff involved.

The Emergency Department

Patients should be encouraged to carry their antiretroviral medications with them when they come to the hospital. A sufficient supply of antiretroviral agents should be available in the emergency department. Physicians working in the emergency department should have sufficient training in the use of antiretrovirals, or an experienced HIV physician should be available for consultation.

The Pharmacy

The hospital pharmacy should maintain a sufficient stock of all antiretroviral drugs. In each hospital, there should be at least 1 HIV specialist pharmacist who should regularly visit units where HIV-infected patients are admitted. Regular meetings between the pharmacist, nurses, and clinicians should be held to optimize the delivery of antiretrovirals.

Meal Delivery System/Examinations and Procedures

It is difficult to organize a meal delivery system that takes into account the various dietary requirements among the current antiretroviral agents. Therefore, unit staff must have access to snacks so that a patient can take medication with food when required by the treatment regimen. Hospitals should develop

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guidelines concerning the use of HAART with certain examinations and procedures, such as surgery, endoscopy, and so on (Table).

If a patient is not allowed to take his or her antiretroviral medications before a certain procedure, the procedure should be planned as early in the day as possible, to keep the interruption of the medication schedule to a minimum. Nurses should be informed at least 1 day before the procedure to allow time to modify the antiretroviral intake schedule. Ob-

viously, this requires that examinations and procedures take place at the agreed-on times.

Physicians and Nurses

Physicians and nurses may not have sufficient knowledge of and experience with HAART regimens.¹⁶ This may result in prescribing errors, including overdosing or underdosing and ordering medications as monotherapy instead of in combination with other antiretrovirals.¹⁷

A retrospective review of anti-

retroviral prescribing in a hospital in California identified incorrect dosing intervals ordered by trainee doctors in 100% of cases.¹⁸ In 11% of these, the dosages were incorrect. Information concerning whether to take the drugs with or without food was correct in only 27% of cases. In another hospital in the United States, the incidence of prescribing errors for antiretroviral medications increased from 2% of admissions in 1996 to 12% of admissions in 1998.¹⁹ In addition to these problems, nurses may

Table. Clinical Procedures and Antiretroviral (ARV) Intake

Procedure	Fast duration, minimum	ARV allowed	ARV given after
Intravenous pyelography	8 h	Yes	Yes
Abdominal radiography	8 h	Yes	Yes
Abdominal ultrasonography	8 h	Yes	Yes
Cardiac catheterization	6 h	Yes*	Yes
CT with contrast	3 h	Yes*	Yes
CT of thorax	Light meal allowed	Yes	Yes
H ₂ breath test/lactose tolerance test	8 h	No	Yes
24-h esophageal pH monitoring	8 h	Yes*	Yes
Esophageal manometry	8 h	Yes	Yes
Esophagus-stomach-bowel radiography	8 h	No	Yes
Gastroscopy	8 h	Yes*	After 1/2 h
Colonoscopy	6 h	Yes	After 1/2 h
Liver biopsy	6 h	Yes	Yes
Endoscopic retrograde cholangiopancreatography	8 h	Yes	After 1/2 h
MRI	4 h	Yes*	Yes
Bronchoscopy	6 h	Yes	After 1 1/2 h

*With small sip of water.

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not have enough time to teach patients how to take their antiretroviral medications, and some health care workers may have negative attitudes toward persons with HIV infection.²⁰

Hospital physicians and nurses should have a minimum knowledge of the use of antiretroviral drugs and HIV care. In every hospital, there should be at least 1 physician and 1 nurse with special expertise with HAART who can update their colleagues at regular intervals on new developments in HIV treatment. When HAART is prescribed, clear instructions should be given on how to take the medication. All physicians and nurses should be aware of the risk of resistance associated with interrupting HAART.

A good medication delivery system can decrease medication errors. It has been shown that medications are less likely to be omitted and more likely to be given on time when they are issued at the patient's bedside from a medication trolley instead of at a ward bay workstation.²¹

Wards where patients with HIV infection are hospitalized should have nurses on staff who are specialists in treatment counseling; they can explain to patients how their antiretroviral medications must be taken and why adherence is vital. Adherence should be monitored for all patients, and a counseling room should be made available to maintain privacy. A checklist can be used to address all issues that may influence patient adherence (eg, lifestyle, health beliefs, knowledge about antiretroviral agents). Videos and educational software are useful tools in promoting adherence.

Because of the complexity of current treatment regimens, patients should be encouraged and trained to properly self-medicate. Directly observed therapy (DOT) programs have worked well for tuberculosis treatment but generally have not been

used for antiretroviral therapy.²² This could be explained by differences in curability and duration of the therapy. Moreover, most DOT antiretroviral programs to date have been tested in prisons, an environment that does not compare with the hospital setting.

Hospitalized patients can be classified into 3 categories: those able to self-medicate with little supervision, those who require supervision, and those who need DOT. The multidisciplinary team can decide which category each patient falls into, and this should be reviewed at regular intervals. To prepare patients for discharge, teaching them to self-medicate should be instituted sufficiently early. At discharge, written information on the medication regimen should be given to the patient, as well as contact numbers and a plan for follow-up.

CONCLUSION

It is clear that during hospitalization, antiretrovirals are often not given or not taken in an ideal way. Discussion among a multidisciplinary team is the first step toward improving medication adherence and patient care. Even today, many prejudices about persons with HIV infection persist among health care workers. Improving the hospital staff's knowledge about HIV/AIDS and its treatment can help reduce these prejudices. The priority is to increase awareness among all hospital health care workers of the risks of drug resistance as a result of poor adherence.

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