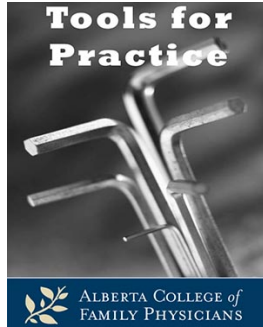


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Pre-Exposure Prophylaxis (PrEP): Are you PrEP'd for the future of HIV prevention?

Clinical Question: In patients at higher risk of contracting HIV, can daily antiviral therapy prevent infection?

Bottom-line: Tenofovir/emtricitabine (PrEP) once daily reduces the risk of HIV by ~50%, preventing infection for ~1 in 50 per year. A year of therapy costs ~\$12,000 and ~1 in 34 develop nausea/vomiting due to the drug.

Evidence:

- PrEP is tenofovir 300 mg (TDF) +/- emtricitabine 200 mg (FTC) once daily.
 - Three systematic reviews¹⁻³ with 6-15 Randomized Controlled Trials (RCTs), new HIV infection statistically significantly reduced:
 - Meta-analysis (10 RCTs, 17,423 patients): 51% relative risk reduction (RRR).¹
 - Others^{2,3} similar.
 - Event rates over ~1 year:² 2% PrEP versus 4% placebo, Number Needed to Treat (NNT)=50.
 - Adherence matters: Adherence >70%, RRR=70% but adherence <40%, effect not significant.¹
 - Seven primary RCTs (total 18,582 patients):
 - High-risk groups studied: Homosexual men (two RCTs);^{4,5} Heterosexual couples with one HIV positive (one RCT);⁶ Single heterosexuals –Africa (one RCT);⁷ IV drug-users –Thailand (one RCT);⁸ Women –Africa (two RCTs).^{9,10}
 - All similar with NNT=16-67 over ~1 year,⁴⁻⁸ except:
 - Two RCTs of African women:^{9,10} No effect but adherence very low.
 - Example: ≤30% had drug in serum when tested.¹⁰
 - Other aspects:
 - Condom use ~80% and generally similar between groups.^{4,6,7,10}
 - TDF effect likely similar to TDF+FTC,¹ but TDF+FTC most studied.
 - Adverse effects: Generally increased nausea/vomiting³ (example 8% versus 5%, NNH=34).⁸
 - Serious adverse events not increased.⁴⁻¹⁰

Context:

- CDC guidelines suggest PrEP (TDF+FTC) be considered if high risk of HIV infection.¹¹

- Before starting PrEP, check renal function, hepatitis B, pregnancy, and (if at risk) osteoporosis.
- Monitor renal function and for HIV (stop if positive).
- Resources available <http://www.catie.ca/en/prevention/statements/prep>.
- Although cost is \$12,000/year, PrEP can be cost effective.¹²
- Modeling study: Homosexual men contracting HIV annually:¹³
 - 10.9% if no PrEP or condom use.
 - ~3% if excellent PrEP or condom adherence.
 - 0.9% if excellent PrEP and condom adherence.
- Unclear if PrEP increases risk behaviour:
 - Most research suggests not,¹ but one RCT found more PrEP users had multiple partners without condoms (21% versus 12%)⁵ and cohort study found 41% of men used condoms less.¹⁴

Authors:

Daniel McKennitt MD MPH(c) CCFP, Corey Jefferies BSc Pharm, G Michael Allan MD CCFP

Disclosures:

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