

Research group recommends MODS

The TB MODS Kit was deemed to be both rapid and accurate for identification and susceptibility testing.

BARCELONA -- A trio of tests for extensively drug-resistant tuberculosis (TB) were deemed fast and accurate, returning results within a week in some cases, researchers reported here.

Based on an interim analysis, the Line Probe Assay (LPA) took about 1 to 2 days to return a clinically meaningful result, while the **Microscopic Identification of Drug Susceptibility (MODS) test produced results in about 5 to 7 days**, according to Antonino Catanzaro, MD, from the University of California San Diego, and colleagues.

In comparison, the gold standard for TB testing, MGIT 960 (Mycobacteria Growth Indicator Tube test) required a median of 25 days to identify extensively drug-resistant TB, he explained during a press briefing at the European Respiratory Society (ERS) meeting.

The third test, pyrosequencing (PSQ), was able to produce results in 1 day in some instances, but in other cases, took over 200 days, he added.

Although the study is ongoing, Catanzaro told MedPage Today that **the MODS and LPA tests are ready for prime time in areas of the world where extensively drug-resistant TB is common**. He added that the

pyrosequencing test might eventually be a better test, but was technically difficult to use at the moment. The development of the quicker tests for extensively drug-resistant TB was mandated by the World Health Organization (WHO).

“The primary, specific aim of the WHO was to reduce the average diagnosis of extensively drug-resistant tuberculosis from months to a week,” Catanzaro said, adding that another goal was to determine agreement between rapid tests and standard drug susceptibility testing (DST).

While LPA has been approved for use in Europe, none of the three tests used in the study have been approved for use by the FDA, he pointed out.

The Global Consortium for Drug-Resistant TB Diagnostics was formed to develop and evaluate extensively drug-resistant TB at three clinical sites in Mumbai, Chisinau, Moldova, and Port Elizabeth, South Africa. Primary aims of the study include reducing extensively drug-resistant TB detection time to a week, and determining agreement between rapid tests and standard DST.

TB patients with risk factors for drug-resistance were recruited from the

three multinational sites. The current study results are from more than 1,000 patients whose samples were collected from April 2012 to July 2013. Resistance analysis was conducted for the TB drugs isoniazid, rifampin, moxifloxacin, ofloxacin, amikacin, capreomycin, and kanamycin.

Rapid test concordance was relative to MGIT960 DST (96%) and was as follows:

- Isoniazid: 96% for LPA, MODS, and PSQ
- Rifampin: 97% for LPA, 98% for MODS, 97% for PSQ
- Moxifloxacin: 96% for LPA, 98% for MODS, 95% for PSQ
- Ofloxacin: 97% for LPA, 98% for MODS, 96% for PSQ
- Amikacin: 98% for LPA, 99% for MODS, 98% for PSQ
- Capreomycin: 98% for LPA, 99% for MODS, 98% for PSQ
- Kanamycin: 92% for LPA, 91% for MODS, 92% for PSQ

Catanzaro said that the concordance rates for kanamycin were “unacceptable,” but that “based on our preliminary data we can conclude that the MODS, PSQ, and LPA are both rapid and accurate.”

ESR President Francesco Blasi, MD, PhD, who moderated the press briefing, told MedPage Today that the delay between TB testing and starting treatment can be as long as month, “and that often means that we cannot locate that [patient] again.” The infected individual may be spreading the extensively drug-resistant strain for several weeks before treatment is initiated, added Blasi who is from the University of Milan.



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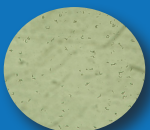


Image 1:
Mycobacterium tuberculosis (clinical isolate) growth visible at 5 days at 100x

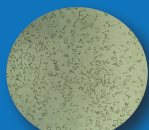


Image 2:
Mycobacterium tuberculosis (clinical isolate) growth visible at 7 days at 100x

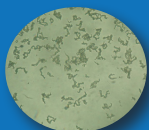
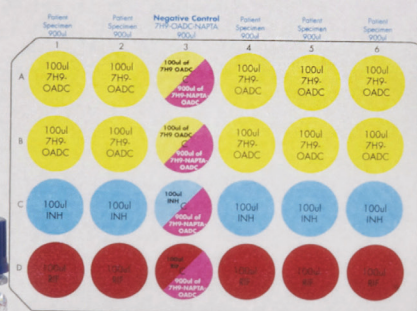


Image 3:
Mycobacterium tuberculosis (clinical isolate) growth with cording visible at 9 days at 100x.

MODS Orientation Card



1. Add 100ul of 7H9-OADC to Rows A and B.
2. Add 100ul INH to Row C.
3. Add 100ul RIF to Row D.
4. Add 900ul of processed patient specimen to column 1,2,4,5,6.
5. Add 900ul of 7H9-OADC-NAFTA to column 3.



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