

Point-of-Care Group B Strep Test Gets Approved

BY SHERRY BOSCHERT
San Francisco Bureau

MONTEREY, CALIF. — A newly approved rapid test for group B streptococcus colonization in pregnancy can be performed by labor and delivery nurses and generates results in about an hour and a half, Dr. Rodney K. Edwards reported.

The Xpert GBS assay is the first rapid test approved for group B streptococcal (GBS) screening at the point of care and may improve GBS detection and prophylactic treatment at the time of labor, potentially reducing the incidence of early-onset neonatal GBS infection, he said

at the annual meeting of the Infectious Diseases Society for Obstetrics and Gynecology.

The test was approved by the Food and Drug Administration on July 25 and is commercially available now.

Conventional GBS screening by culture at 35-37 weeks' gestation misses subsequent colonization. Results aren't available for 14-48 hours, so culture isn't helpful in assessing GBS colonization in previously unscreened women in labor. Because GBS colonization can be intermittent, culture results from 35-37 weeks' gestation have a positive predictive value of 67%-85% for GBS colonization at the time of labor.

A previously approved rapid GBS test, the IDI-Strep B test, must be analyzed in laboratories, which may not be available around the clock, added Dr. Edwards of the University of Florida, Gainesville. He has been a speaker for Cepheid, the company that makes both rapid GBS assays and that funded the study.

The Xpert GBS assay compared favorably with culture and had greater sensitivity and a better negative predictive value than the IDI-Strep B test in a prospective study of 784 pregnant women seen at six medical centers. Vaginal/rectal swabs from each patient were analyzed by Xpert GBS assay, culture, and IDI-Strep B test. Labor and delivery nurses performed the Xpert GBS assay on 548 women in labor. Laboratory workers analyzed swabs from these patients by culture and IDI-Strep B test, and used all three screening tests on samples from the 418 intrapartum patients.

The prevalence of GBS colonization was 24%. Compared with culture, the Xpert GBS assay was 91% sensitive, which is above the Centers for Disease Control (CDC) and Prevention's recommendation that a rapid intrapartum screening test for GBS be at least 85% sensitive, he noted. The 95% confidence interval for the Xpert GBS assay's sensitivity did not cross 85%.

The assay had a specificity of 96%, a positive predictive value of 88%, a negative predictive value of 97%, and an accuracy rate of 95% compared with culture.

The IDI-Strep B test's 79% sensitivity

and 94% negative predictive value compared with culture were significantly less accurate than the results obtained by the Xpert GBS assay. The IDI-Strep B test's 95% specificity, 84% positive predictive value, and 92% accuracy rate were comparable to results in those categories from the Xpert GBS assay.

The Xpert GBS assay will cost \$45 per test. "Whether or not that is something worth doing at that price, that's up to interpretation," Dr. Edwards said. Although the cost is higher than for culture, "I think it compares favorably to other rapid tests that we perform on labor and delivery units such as fetal fibronectin."

Conventional GBS screening by culture at 35-37 weeks' gestation misses subsequent colonization.

DR. EDWARDS

The test is made to be processed using a GeneXpert Dx system, which costs about \$20,000.

One physician in the audience suggested that replacing culture screening with Xpert GBS screening would require doing an intrapartum assay on every woman. "It's a paradigm shift on labor and delivery" units, he said.

Dr. Edwards said that initially the assay would be used for women in labor without a prior screening culture—"people who come in for premature rupture of membranes or preterm labor, or unregistered patients," he suggested. An eventual replacement of the assay for the current screening strategies could significantly increase the work of labor and delivery nurses. The nurses at his institutions liked doing the assay in the study, however, because they felt that it improved clinical care. "Our nurses now miss it and continue to ask me, 'When is that machine coming back?'"

The assay is a qualitative, automated real-time polymerase chain reaction (PCR) test with fluorogenic detection of the amplified DNA. Unlike other PCR tests, it doesn't require that the sample be separately prepared and is designed to purify, concentrate, detect, and identify targeted nucleic acid sequences from unprocessed samples.

The study's analysis excluded results from another 244 swabs—12 from patients who were enrolled more than once, 10 from patients with "unresolved" results after two attempts at Xpert GBS assay, and 222 that were vaginal/perianal swabs instead of vaginal/rectal swabs recommended by the CDC.

The investigators did analyze results from the excluded swabs, however, and found that the Xpert GBS assay was significantly less sensitive using vaginal/perianal swabs, compared with vaginal/rectal swabs. "I have no idea why this is the case. It doesn't make sense to me," and an additional study is planned comparing screening of vaginal/rectal and vaginal/perianal samples, he said. The sensitivity of culture did not differ significantly between types of swabs. ■

Adverse Event	amlodipine		Placebo	
	M=% (N=1218)	F=% (N=512)	M=% (N=914)	F=% (N=336)
Edema	5.6	14.6	1.4	5.1
Flushing	1.5	4.5	0.3	0.9
Palpitations	1.4	3.3	0.9	0.9
Somnolence	1.3	1.6	0.8	0.3

The following events occurred in $\leq 1\%$ but $>0.1\%$ of patients treated with amlodipine in controlled clinical trials or under conditions of open trials or marketing experience where a causal relationship is uncertain; they are listed to alert the physician to a possible relationship: **Cardiovascular:** arrhythmia (including ventricular tachycardia and atrial fibrillation), bradycardia, chest pain, hypotension, peripheral ischemia, syncope, tachycardia, postural dizziness, postural hypotension, vasculitis. **Central and Peripheral Nervous System:** hyposthesia, neuropathy peripheral, paresthesia, tremor, vertigo. **Gastrointestinal:** anorexia, constipation, dyspepsia, dysphagia, diarrhea, flatulence, pancreatitis, vomiting, gingival hyperplasia. **General:** allergic reaction, asthenia, back pain, hot flushes, malaise, pain, rigors, weight gain, weight decrease. **Musculoskeletal System:** arthralgia, arthrosis, muscle cramps, myalgia. **Psychiatric:** sexual dysfunction (male and female), insomnia, nervousness, depression, abnormal dreams, anxiety, depersonalization. **Respiratory System:** dyspnea, epistaxis. **Skin and Appendages:** angioedema, erythema multiforme, pruritus, rash, rash erythematous, rash maculopapular. **Special Senses:** abnormal vision, conjunctivitis, diplopia, eye pain, tinnitus. **Urinary System:** micturition frequency, micturition disorder, nocturia. **Autonomic Nervous System:** dry mouth, sweating increased. **Metabolic and Nutritional:** hyperglycemia, thirst. **Hematologic:** leukopenia, purpura, thrombocytopenia. The following events occurred in $\leq 0.1\%$ of patients treated with amlodipine in controlled clinical trials or under conditions of open trials or marketing experience: cardiac failure, pulse irregularity, extrasystoles, skin discoloration, urticaria, skin dryness, alopecia, dermatitis, muscle weakness, twitching, ataxia, hypertension, migraine, cold and clammy skin, apathy, agitation, amnesia, gastritis, increased appetite, loose stools, coughing, rhinitis, dysuria, polyuria, parosmia, taste perversion, abnormal visual accommodation, and xerophthalmia. Other reactions occurred sporadically and cannot be distinguished from medications or concurrent disease states such as myocardial infarction and angina. Amlodipine therapy has not been associated with clinically significant changes in routine laboratory tests. No clinically relevant changes were noted in serum potassium, serum glucose, total triglycerides, total cholesterol, HDL cholesterol, uric acid, blood urea nitrogen, or creatinine. The following postmarketing event has been reported infrequently with amlodipine treatment where a causal relationship is uncertain: gynecomastia. In postmarketing experience, jaundice and hepatic enzyme elevations (mostly consistent with cholestasis or hepatitis) in some cases severe enough to require hospitalization have been reported in association with use of amlodipine. Amlodipine has been used safely in patients with chronic obstructive pulmonary disease, well-compensated congestive heart failure, peripheral vascular disease, diabetes mellitus, and abnormal lipid profiles. **The Atorvastatin Component of CADUET:** Atorvastatin is generally well-tolerated. Adverse reactions have usually been mild and transient. In controlled clinical studies of 2502 patients, $<2\%$ of patients were discontinued due to adverse experiences attributable to atorvastatin calcium. The most frequent adverse events thought to be related to atorvastatin calcium were constipation, flatulence, dyspepsia, and abdominal pain. Clinical Adverse Experiences: Adverse experiences reported in $\geq 2\%$ of patients in placebo-controlled clinical studies of atorvastatin, regardless of causality assessment, are shown in Table 3.

Table 3. Adverse Events in Placebo-Controlled Studies (% of Patients)

Body System/ Adverse Event	Placebo N=270	atorvastatin			
		10 mg N=863	20 mg N=36	40 mg N=79	80 mg N=94
BODY AS A WHOLE					
Infection	10.0	10.3	2.8	10.1	7.4
Headache	7.0	5.4	16.7	2.5	6.4
Accidental Injury	3.7	4.2	0.0	1.3	3.2
Flu Syndrome	1.9	2.2	0.0	2.5	3.2
Abdominal Pain	0.7	2.8	0.0	3.8	2.1
Back Pain	3.0	2.8	0.0	3.8	1.1
Allergic Reaction	2.6	0.9	2.8	1.3	0.0
Asthenia	1.9	2.2	0.0	3.8	0.0
DIGESTIVE SYSTEM					
Constipation	1.8	2.1	0.0	2.5	1.1
Diarrhea	1.5	2.7	0.0	3.8	5.3
Dyspepsia	4.1	2.3	2.8	1.3	2.1
Flatulence	3.3	2.1	2.8	1.3	1.1
RESPIRATORY SYSTEM					
Sinusitis	2.6	2.8	0.0	2.5	6.4
Pharyngitis	1.5	2.5	0.0	1.3	2.1
SKIN AND APPENDAGES					
Rash	0.7	3.9	2.8	3.8	1.1
MUSCULOSKELETAL SYSTEM					
Arthralgia	1.5	2.0	0.0	5.1	0.0
Myalgia	1.1	3.2	5.6	1.3	0.0

Anglo-Scandinavian Cardiac Outcomes Trial (ASCOT): In ASCOT involving 10,305 participants treated with atorvastatin 10 mg daily (n=5,168) or placebo (n=5,137), the safety and tolerability profile of the group treated with atorvastatin was comparable to that of the group treated with placebo during a median of 3.3 years of follow-up. The following adverse events were reported, regardless of causality assessment, in patients treated with atorvastatin in clinical trials. The events in italics occurred in $\geq 2\%$ of patients and the events in plain type occurred in $<2\%$ of patients. **Body as a Whole:** Chest pain, face edema, fever, neck rigidity, malaise, photosensitivity reaction, generalized edema. **Digestive System:** Nausea, gastroenteritis, liver function tests abnormal, colitis, vomiting, gastritis, dry mouth, rectal hemorrhage, esophagitis, eructation, glossitis, mouth ulceration, anorexia, increased appetite, stomatitis, biliary pain, cheilitis, duodenal ulcer, dysphagia, enteritis, melena, gum hemorrhage, stomach ulcer, tenesmus, ulcerative stomatitis, hepatitis, pancreatitis, cholestatic jaundice. **Respiratory System:** Bronchitis, rhinitis, pneumonia, dyspnea, asthma, epistaxis. **Nervous System:** Insomnia, dizziness, paresthesia, somnolence, amnesia, abnormal dreams, libido decreased, emotional lability, incoordination, peripheral neuropathy, torticollis, facial paralysis, hyperkinesia, depression, hypesthesia, hypertonia. **Musculoskeletal System:** Arthritis, leg cramps, bursitis, tenosynovitis, myositis, tendon contracture, myositis. **Skin and Appendages:** Pruritus, contact dermatitis, alopecia, dry skin, sweating, acne, urticaria, eczema, seborrhea, skin ulcer. **Urogenital System:** Urinary tract infection, urinary frequency, cystitis, hematuria, impotence, dysuria, kidney calculus, nocturia, epididymitis, fibrocystic breast, vaginal hemorrhage, albuminuria, breast enlargement, metrorrhagia, nephritis, urinary incontinence, urinary retention, urinary urgency, abnormal ejaculation, uterine hemorrhage. **Special Senses:** Amblyopia, tinnitus, dry eyes, refraction disorder, eye hemorrhage, deafness, glaucoma, parosmia, taste loss, taste perversion. **Cardiovascular System:** Palpitation, vasodilatation, syncope, migraine, postural hypotension, phlebitis, arrhythmia, angina pectoris, hypertension. **Metabolic and Nutritional Disorders:** Peripheral edema, hyperglycemia, creatine phosphokinase increased, gout, weight gain, hypoglycemia. **Hemic and Lymphatic System:** Echinomiasis, anemia, lymphadenopathy, thrombocytopenia, petechia. **Postintroduction Reports with Atorvastatin:** Adverse events associated with atorvastatin therapy reported since market introduction, that are not listed above, regardless of causality assessment, include the following: anaphylaxis, angioneurotic edema, bullous rashes (including erythema multiforme, Stevens-Johnson syndrome, and toxic epidermal necrolysis), and rhabdomyolysis. **Pediatric Patients (ages 10-17 years):** In a 26-week controlled study in boys and postmenarchal girls (n=140), the safety and tolerability profile of atorvastatin 10 to 20 mg daily was generally similar to that of placebo (see **PRECAUTIONS, Pediatric Use**).

OVERDOSAGE: There is no information on overdosage with CADUET in humans. **Information on Amlodipine:** Single oral doses of amlodipine maleate equivalent to 40 mg amlodipine/kg and 100 mg amlodipine/kg in mice and rats, respectively, caused deaths. Single oral amlodipine maleate doses equivalent to 4 or more mg amlodipine/kg in dogs (11 or more times the maximum recommended clinical dose on a mg/m² basis) caused a marked peripheral vasodilation and hypotension. Overdosage might be expected to cause excessive peripheral vasodilation with marked hypotension and possibly a reflex tachycardia. In humans, experience with intentional overdosage of amlodipine is limited. Reports of intentional overdosage include a patient who ingested 250 mg and was asymptomatic and was not hospitalized; another (120 mg) was hospitalized, underwent gastric lavage and remained normotensive; the third (105 mg) was hospitalized and had hypotension (90/50 mmHg) which normalized following plasma expansion. A patient who took 70 mg amlodipine and an unknown quantity of benzodiazepine in a suicide attempt developed shock which was refractory to treatment and died the following day with abnormally high benzodiazepine plasma concentration. A case of accidental drug overdose has been documented in a 19-month-old male who ingested 30 mg amlodipine (about 2 mg/kg). During the emergency room presentation, vital signs were stable with no evidence of hypotension, but a heart rate of 180 bpm. Ipecac was administered 3.5 hours after ingestion and on subsequent observation (overnight) no sequelae were noted. If massive overdose should occur, active cardiac and respiratory monitoring should be instituted. Frequent blood pressure measurements are essential. Should hypotension occur, cardiovascular support including elevation of the extremities and the judicious administration of fluids should be initiated. If hypotension remains unresponsive to these conservative measures, administration of vasopressors (such as phenylephrine) should be considered with attention to circulating volume and urine output. Intravenous calcium gluconate may help to reverse the effects of calcium entry blockade. As amlodipine is highly protein bound, hemodialysis is not likely to be of benefit. **Information on Atorvastatin:** There is no specific treatment for atorvastatin overdosage. In the event of an overdose, the patient should be treated symptomatically, and supportive measures instituted as required. Due to extensive drug binding to plasma proteins, hemodialysis is not expected to significantly enhance atorvastatin clearance.

*Based on patient weight of 50 kg.

**These events occurred in less than 1% in placebo-controlled trials, but the incidence of these side effects was between 1% and 2% in all multiple dose studies.

Rx only

Manufactured by:
Pfizer Ireland Pharmaceuticals
Dublin, Ireland

© 2004 Pfizer Ireland Pharmaceuticals

Distributed by:



Pfizer Labs

Division of Pfizer Inc., NY, NY 10017

Rev. 1 October 2004