MEDICAL DEVICE DAILY™

THE DAILY MEDICAL TECHNOLOGY NEWS SOURCE

TUESDAY, APRIL 19, 2016 VOLUME 20, NO. 75

REDUCING DANGEROUS GI LEAKS

Lifebond seals European approval, expedited U.S. access for GI resections

By Amanda Pedersen, Senior Staff Writer

As many as 19 percent of colorectal surgery patients experience leakage at the point of surgical connection, which can be a life threatening complication. The problem is so common with gastrointestinal (GI) resections — and so dangerous for patients — that it's often what keeps colorectal surgeons awake at night.

"Many of them have said 'we don't sleep' [because of this problem]," Gideon Sturlesi told *Medical Device Daily*.

Sturlesi is the president and CEO of Lifebond Ltd, an Israel-based company that just received CE mark for its Lifeseal product, a gastrointestinal sealant specifically designed to minimize staple-line leakage in resection procedures. According to the

See Lifebond, page 4

Nowcardio a potential triple threat in ambulatory arrhythmia monitoring

By David Godkin, Staff Writer

Event Cardio Group Inc. is moving forward with its Canadian plan for commercializing Nowcardio, an advanced ambulatory arrhythmia monitoring system - this following the device's certification to Canadian Medical Devices Conformity Assessment System standards. Event Cardio has also signed an agreement with Newmarket, Ontario's The Stornoway Group Inc. to accelerate

See Nowcardio, page 5

CLINICAL VS. COSMETIC OUTCOMES

Myth-busting in full force at ASBS meeting

By Diana Tucker, Staff Writer

DALLAS – As the effort to eradicate breast cancer moves forward at lightning speed, several speed bumps are occurring along the way. The fast accumulation and availability of breast cancer databases compels data driven evidence to support current standards of care; often leading to challenging opinions and guidelines that have been held for many years. This year's annual

See ASBS, page 3

REGULATORY

Company tells FDA it keeps no records for design controls

By Richie Crider, Staff Writer

The representative of a family-owned fat harvesting company informed an FDA investigator that the company does not maintain required records under the quality system regulations - including records for design controls - according to a recently posted warning letter.

During an Oct. 13-14, 2015, inspection of **Miami Fat Supply**, the company's representative informed the FDA investigator that the Groveland, Fla.-based company does not maintain records or follow internal procedures for design controls, quality controls, corrective and preventive action (CAPA), medical device reporting or complaint handling. The FDA also discovered the company has not received premarket clearance or approval to market its devices, which include the Red Head

See Regulatory, page 6

IN THIS ISSUE

CARDIOLOGY EXTRA

Senior Staff Writer Amanda Pedersen on one of med-tech's key sectors

Read this week's Tuesday Special

For Sales Inquiries: http://ip-science.interest.thomsonreuters.com/Bioworld_Sales_Inquiry. NORTH AMERICA, Tel: +1 855 260 5607. Outside of the U.S. and Canada, Tel. +44-203-684-1797. For Customer Service Inquiries, NORTH AMERICA, Tel: +1-800-336-4474. Outside of the U.S. and Canada, Tel. +44-203-684-1796. Or email bioworld.support@thomsonreuters.com. Copyright ©Thomson Reuters. Reproduction is strictly prohibited. Visit our website at www.medicaldevicedaily.com

THOMSON REUTERS™

PRODUCT BRIEFS

Nevro Corp., of Redwood City, Calif., has received FDA approval for its surgical leads, which are specifically designed for use with the Senza spinal cord stimulation (SCS) system delivering HF10 therapy. The company said that the Senza system is the only SCS system that delivers Nevro's HF10 therapy, an SCS therapy that provides electrical pulses to the spinal cord to alleviate pain. The electrical pulses are delivered by small electrodes on leads that are placed near the spinal cord and are connected to a compact, battery-powered generator implanted under the skin. HF10 therapy is indicated to provide pain relief without paresthesia (a stimulation-induced sensation, such as tingling or buzzing, which is the basis of traditional SCS) and is also the first SCS therapy to demonstrate superiority to traditional SCS for back and leg pain in a comparative pivotal study.

Tustin, Calif.-based **Toshiba America Medical Systems Inc.**'s Aquilion Lightning was FDA cleared with a more powerful 50-kW generator. The Aquilion Lightning is a 16-detector row system designed for routine volumetric scanning.

Palo Alto,Calif-based **Varian Medical Systems Inc.** is supporting a third stage randomized clinical study comparing outcomes of a radiosurgery versus surgical resection for the early-stage, operable non-small cell lung cancer treatment. The company has dubbed it the Stablemates trial. The company said the trial involves 34 institutions and 258 patients currently that were led by co-chairs Hiran Fernando, Boston Medical Center, and Robert Timmerman of University of Texas Southwestern Medical Center.

FINANCINGS

Intricon Corp., of Arden Hills, Minn., said it has amended its credit facilities with The Privatebank. Highlights of the amendment include; increasing Intricon's term loan to $6 million from its current balance of $4 million, amortized in quarterly principal installments of $250,000; increasing Intricon's revolving credit facility capacity to $9 million from its current capacity of $8 million; and raising the inventory cap on the borrowing base from $3.5 million to $4 million.

APPOINTMENTS AND ADVANCEMENTS

Flextronics International Ltd., of San Jose, Calif., reported the appointment of John Carlson as its president. Carlson joins Flex from **Johnson & Johnson**, of New Brunswick, N.J., where he spent the past 15 years in leadership roles related to medical device research and development, most recently as VP of the innovation portfolio.

Wellcare Health Plans Inc., of Tampa, Fla., appointed Darren Ghanayem as senior vice president, chief information officer. As the company's top technology leader, Ghanayem will be responsible for further advancing Wellcare's technology capabilities to support the company's focus on growth and innovation opportunities. Prior to joining Wellcare, Ghanayem spent more than 15 years with Anthem. Most recently, he served as vice president of business transformation.

MEDICAL DEVICE DAILY

Medical Device Daily™ (ISSN# 1541-0617) is published every business day by Thomson Reuters, 115 Perimeter Center Place, Suite 1100, Atlanta, GA 30346 U.S.A. Opinions expressed are not necessarily those of this publication. Mention of products or services does not constitute endorsement. All Rights Reserved. No part of this publication may be reproduced without the written consent of Thomson Reuters (GST Registration Number R128870672).

CONTACT US

medicaldevicedaily.newsdesk@medicaldevicedaily.com

Donald R. Johnston, (770) 810 3118 // Holland Johnson, (770) 810-3122 // Amanda Pedersen, (912) 660-2282 // Omar Ford, (770) 810-3125 // Mark McCarty, (703) 361-2519 // Sarah Cross, (770) 810-3138// Penney Holland (770) 810-3047 // Lynn Yoffee, (770) 810-3123

OUR NEWSROOM

Lynn Yoffee (News Director), Holland Johnson (Executive Editor), Mark McCarty (Regulatory Editor), Omar Ford & Amanda Pedersen (Staff Writers)

PRACTICAL INFORMATION

For Sales Inquiries: http://ip-science.interest.thomsonreuters.com/Bioworld_Sales_Inquiry. NORTH AMERICA, Tel: (855) 260-5607. Outside of the U.S. and Canada, Tel. +44.203.684.1797. For Customer Service Inquiries, NORTH AMERICA, Tel: (800) 336-4474. Outside of the U.S. and Canada, Tel. +44-203-684-1796. Or email bioworld.support@thomsonreuters.com. Copyright ©Thomson Reuters. Reproduction is strictly prohibited. Visit our website at www.medicaldevicedaily.com.

For ad rates and information, please contact Chris Venezia toll free at (855) 260-5607; outside the U.S. and Canada, call (646) 522-6243 or by email at christopher.venzia@thomsonreuters.com.

For photocopy rights or reprints, please contact Chris Venezia toll free at (855) 260-5607; outside the U.S. and Canada, call (646) 522-6243 or by email at christopher.venzia@thomsonreuters.com.

Send all press releases and related information to medicaldevicedaily.newsdesk@medicaldevicedaily.com.

BUSINESS OFFICE

Donald R. Johnston (Senior Director, Current Awareness), Sarah Cross (Marketing Director), Penney Holland (Web Production Manager)

ASBS

Continued from page 1

meeting of the American Society for Breast Surgeons (ASBS) confronted several key controversies with studies that went against the grain of historic beliefs, often pegging potential clinical against cosmetic outcomes.

MYTH #1: DCIS IS NOT CANCER AND SHOULD BE WATCHED, NOT TREATED

As recently as last August, the *New York Times* published a piece on a *JAMA Oncology* article along with its accompanying editorial by Laura Esserman, and Christina Yau, of the University of California, San Francisco who made bold statements about calling ductal carcinoma in situ (DCIS) "cancer." They opined that essentially, "80 percent of women who are diagnosed with DCIS, and increasingly so [thanks to improving mammogram image technologies], likely don't need surgery, radiation, drugs or any interventional therapy. Instead, they and their doctors should keep an eye on the situation."

But research presented at this meeting indicated that the process is more complicated than thought. Long-term studies have found that even without treatment, not all cases of carcinoma in situ become invasive cancer. The question remains which patients will develop invasive cancer and which ones won't; leaving the unanswered question 'Are we over treating a non cancer or undertreating a potential cancer?'

Sadia Khan, program advisor, Hoag Breast Care Center, Hoag Memorial Hospital Presbyterian, in Newport Beach, Calif., and assistant clinical professor of surgery, Keck School of Medicine, University of Southern California addressed this question in a study aimed at determining if is it possible to stratify those patients with DCIS into low-medium risk and high risk and treat only those in the high risk group. Risk was based on margins at surgery and grade of cells: those in the low risk group were watched while those in the high risk had another surgery.

This study found that the stratification employed was not able to determine which patients benefited from an additional surgery.

"It did find that excising DCIS with a minimum of 1 mm margin of disease-free tissue is beneficial for many women and that further study is needed before current protocols are revised," noted Khan. The study illustrated that simple surveillance should not be the recommended option for all women with DCIS. According to Khan, "Regardless of the grade of DCIS, not performing surgery is not acceptable. The recurrence rate is too high, with about 50 percent of all recurrences being invasive."

"We may be over treating some women with DCIS," continued Khan, "but we don't understand the biology of the disease enough to say which patients we're over treating and which patients we are saving from invasive breast cancer."

Others argue that these recurrences are a recurrence of a non-invasive precursor to cancer, not a recurrence of cancer cells and that so far there has been no study that shows a correlation between treating DCIS and an improved mortality rate.

"Given these results, a watch and wait philosophy would be harmful for many women," Khan commented. Others say that a balance between quality of life should be taken into consideration with the patient's feelings regarding the possible disfigurement that may be caused with more aggressive treatment.

In a webcast on the study, moderator Julie Margenthaler, from Washington University in St Louis, said, "There are clinical trials underway in Europe and the United States that are evaluating active surveillance for DCIS. We would recommend that surgeons and patients use caution [when using] observation-only outside of a clinical trial."

MYTH #2: NIPPLE SPARING MASTECTOMY IS TOO RISKY FOR BRCA PATIENTS

It is widely known that at least 85 percent of all breast cancers begin in the milk ducts that eventually culminate in the nipple. Logic then dictates that when performing prophylactic nipple-sparing mastectomies (NSM) for women with deleterious BRCA-gene mutations that cancer cells may be left behind, suggesting that it is too risky for patients with BRCA genes.

James Jakub, section head breast and melanoma surgery, Mayo Clinic, argued otherwise: "With today's nipple-sparing techniques women with BRCA can look forward to very effective risk reduction with a very superior cosmetic outcome. " This statement arises from a new, large multi-institutional retrospective analysis comprised of a total 551 prophylactic mastectomies in 348 patients from nine medical institutions from 1968 to 2013. The study demonstrated that NSM procedures are highly effective in preventing breast cancer in the BRCA population, while delivering enhanced cosmetic results. In fact, said Jakub, "None of the patients who underwent a bilateral risk-reducing NSM developed breast cancer at any site."

MYTH #3: ROUTINE MAMMOGRAMS FOR WOMEN UNDER THE AGE OF 40 ARE UNNECESSARY.

Recent guidelines published by the American Cancer Society changed the age for women to receive routine mammograms from women over 40 to women over 45, unless the woman is at high risk. But how does a woman know if she is at high risk without a formal risk assessment? The question Kevin Hughes, FACS, co-director of the Avon Comprehensive Breast Evaluation Center at Massachusetts General Hospital, Associate Professor of Surgery at Harvard Medical School, asked in the study he led was "How many women between 40-45 who are now not getting screened may have developed cancer and should have been screened?"

About 50 percent of those women between 40 and 45 years old that were not receiving a mammogram developed invasive breast cancer in 4 years; of those, about 39 percent would

See ASBS, page 4

For Sales Inquiries: http://ip-science.interest.thomsonreuters.com/Bioworld_Sales_Inquiry. NORTH AMERICA, Tel: +1 855 260 5607. Outside of the U.S. and Canada, Tel. +44-203-684-1797. For Customer Service Inquiries, NORTH AMERICA, Tel: +1-800-336-4474. Outside of the U.S. and Canada, Tel. +44-203-684-1796. Or email bioworld.support@thomsonreuters.com. Copyright ©Thomson Reuters. Reproduction is strictly prohibited. Visit our website at www.medicaldevicedaily.com

Lifebond

Continued from page 1

company, the product is the only sealant indicated for use in the GI tract to help reduce leaks. The product also has received an expedited access pathway designation from the FDA and Sturlesi said the company expects to start an international pivotal study "very soon" that will enroll patients at U.S. and European centers.

"I think FDA, this time, really recognizes the importance of the product," Sturlesi said.

Still just a couple years old, the FDA's EAP program was created for devices that demonstrate the potential to address unmet medical needs for life threatening or irreversibly debilitating diseases or conditions that are either required to go through the premarket approval application process or eligible for de novo requests. The idea behind the program is that the agency will work with companies to try to reduce the time and cost from development to marketing decision while still maintaining the PMA approval standard of safety and effectiveness. Companies that receive an EAP designation may benefit from priority review, more interactive review and, in some instances, a case manager will be assigned to help guide the company through the process.

"So many of these people are cancer patients going for chemo so their immune system is already compromised," Sturlesi said.

Sturlesi said the product has not only demonstrated the clinical benefit of reducing leaks but it also holds potential to offer a significant cost benefit for the health care system. Leaks from colorectal surgery are associated with longer hospital stays and often repeat surgery to fix the problem. He said the lower in the GI tract the resection occurs, the more likely there is to be a leak at the point of surgical connection.

Lifebond, of Caesarea, Israel, has been developing the Lifeseal technology for almost a decade. In 2014 the company presented a preliminary clinical study at the European Society of Coloproctology meeting involving 10 patients with rectal cancer that had been randomized to either the Lifeseal group or the standard of care group. In the Lifeseal group, one unit of the sealant was applied on the staple line re-connecting the rectum. No safety concerns related to the product were reported during that study and no leaks were identified along the surgical connection where Lifeseal had been applied. (See *Medical Device Daily*, Oct. 27, 2014.)

Lifeseal is intended for both open and laparoscopic procedures and can be applied to places surgeons are normally not able to reach. The sealant is comprised of two components that combine inside a special applicator and is then applied to the staple lines in a gel form. Once applied, the product is designed to transform into a durable, elastic and transparent protective layer that conforms to tissue and imitates its natural properties. It is expected to remain in place long enough to create an environment that supports the body's natural healing process, then degrades into the body.

The company was founded in 2007 by Ishay Attar and Orahn Preiss-Bloom and also has a self-fixating mesh product in its pipeline that is intended to provide secure surgical mesh fixation for hernia repair procedures. Lifemesh, which is in pre-clinical development, is designed to provide atraumatic tissue fixation through its embedded adhesive layer and is meant to address complications currently associated with penetrative mesh fixation such as tacks or sutures.

The venture-backed company raised $27 million in its series D preferred equity round, which closed last August. Pitango Venture Capital, Adams Street Partners, Sino Biopharmaceutical Ltd., and all of the company's existing investors participated in that financing, which was raised to support European commercialization of Lifeseal and the pivotal study for FDA approval as well as the clinical development of Lifemesh.

"The CE mark as well as the EAP designation are not simply formalities, but a confirmation of the significance of this product and the important benefits it can produce," said Ittai Harel, Lifebond's board chairperson and managing general partner at Pitango. //

ASBS

Continued from page 3

have been deemed at high risk and would have received their mammogram. In other words, it is too risky not to perform mammograms on all women age 40-45 unless a formal risk assessment is performed.

So the larger question is who is counseling these patients? "Many radiologists are now doing it," said Margenthaler, "but should family practice and ob/gyns be doing it? How do we know who is at high risk so that they receive their mammograms? Which medical professional should be performing the formal breast cancer assessment starting at age 40?"

Hughes concluded, "A growing body of evidence points to the fact that if your doctor adheres to the new recommendations for breast screening, actively seek out a formal risk assessment, whether or not it is specifically suggested, to make sure you receive the care you need."

This conference pointed out that historic factors used to define high risk or low risk patient groups are no longer accurate enough to suggest appropriate therapies; and that a better definition of high vs. low risk is needed. Not only to determine who needs life-saving measures taken, but also to allow those who can to safely avoid disfiguring consequences of over treatment. With current advances being made in molecular diagnostics, genetic testing, and improved algorithms for risk assessment, the answer to these questions should come relatively soon. //

For Sales Inquiries: http://ip-science.interest.thomsonreuters.com/Bioworld_Sales_Inquiry. NORTH AMERICA, Tel: +1 855 260 5607. Outside of the U.S. and Canada, Tel. +44-203-684-1797. For Customer Service Inquiries, NORTH AMERICA, Tel: +1-800-336-4474. Outside of the U.S. and Canada, Tel. +44-203-684-1796. Or email bioworld.support@thomsonreuters.com. Copyright ©Thomson Reuters. Reproduction is strictly prohibited. Visit our website at www.medicaldevicedaily.com

Nowcardio

Continued from page 1

regulatory approvals in Europe, Australia and the U.S.

"We're absolutely thrilled," Event Cardio President and CEO John Bentivoglio told *Medical Device Daily*. "We've been working on this for four years and we believe we have the best device for ambulatory arrhythmia monitoring available in the world today."

Bentivoglio stakes his claim on the combination of three distinct technologies in Nowcardio to monitor, record, transmit and analyze a patient's cardiac data: an event recorder stores brief recordings of ECG activity when activated by the patient in response to symptoms. Mobile cardiac outpatient telemetry or "loop recording" provides several days of ECG monitoring in patients with symptoms suggestive of a significant cardiac arrhythmia.

Meantime, a Holter monitor records cardiac events likely to occur within 24 or 48 hours to record events - usually too short to capture infrequent symptoms of arrhythmia. By combining Holter with event and telemetry recording, Nowcardio "can do it all," said Bentivoglio, monitoring and recording a patient's cardiac status for up to thirty days.

"Most important, though, is that all of that is done in real time," Bentivoglio said. "You could be in Toronto and your doctor in Ottawa and he could have immediate access to whatever test is underway at that moment." Cardiac data from a single-lead ECG patch worn by the patient is transferred via Bluetooth and fob to a remote computerized data monitoring center for interpretation by hospital staff.

Also critical to ambulatory arrhythmia monitoring is patient acceptance – precisely where Holter monitors fall down, Event Cardio's Chief Engineer Richard Smith explained to *Medical Device Daily*. "A lot of patients won't keep it on because there are a lot of leads, a lot of wires and it's uncomfortable. So you don't get the kind of diagnostic yield required." By reducing the weight and electronic complexity, the single-lead Nowcardio is worn more comfortably by patients, he said, to produce a greater data yield.

No one is more sensitive to his patients' comfort than Yaariz Khaykin, an electrophysiologist at Southlake Regional Health Center in Newmarket, Ontario. "My patients come back to me and say 'please, please don't order another two week Holter.'" But the verdict is still out, he told *Medical Device Daily*, on single lead ECGs. "It makes sense, depending upon the patients' willingness to have anything attached to their skin for prolonged periods of time."

Peter Zimetbaum, Associate Chief and Director of Clinical Cardiology Beth Israel Deaconess Medical Center, contrasts the Holter monitor with the Zio Patch made by San Francisco's Irhythm Technologies Inc. The lightweight, single-use cardiac event patch continuously records heartbeats for up to thirty days, compared to twenty-four to forty-eight hours using the Holter.

"Both of these devices provide comprehensive arrhythmia analysis," he told *Medical Device Daily*, "but neither provides that data in real time to the physician. The Zio patch has the distinctive advantage of comfort for the patient with a longer period of surveillance."

Dublin-based Medtronic plc's Seeq Mobile Cardiac Telemetry is also a simple peel-and-stick sensor attached to the patient's chest, but has real time monitoring ability. There, the impediment could be cost: "The Seeq is expensive, costing about US$700," Zimetbaum said. "Event recorders and even the Zio patch are only US$200. So there's a big cost differential when you have these more advanced devices."

How might Nowcardio compare once it's on the market? That's still to be determined. So far, money coming in to Event Cardio Group has been for developing the product, i.e. a second tranche of C$325,000 CAD from a group of individuals who are party to C$1.5 million in subscription agreements disclosed on Feb. 17, 2016. To date, the group has advanced C$660,000 of the C$1.5 million. According to company literature this second tranche of funds will largely be used to further the commercialization of the Nowcardio. //

OTHER NEWS TO NOTE

Amedica Corp., of Salt Lake City, reported a partnership with **Shandong Weigao Orthopedic Device Company Ltd**, a subsidiary of **Shandong Weigao Group Medical Polymer Company Ltd,** of Weihai, China. Under the distribution agreement, Weigao Orthopedic will have exclusive rights for the sale, marketing and distribution of Amedica-branded silicon nitride spinal implants in the People's Republic of China, and will abide by minimum annual purchase requirements in year one of 20,000 units, growing annually to 50,000 units in year six, following regulatory clearance by the CFDA. Weigao Orthopedic will use its expertise in acquiring CFDA clearance of medical devices, in order to accelerate Chinese clearance of Amedica's products.

Baxter International Inc., of Deerfield, Ill., said it plans initially to lay off 106 workers at a manufacturing facility it is closing. The facility is expected to close by March 31 of next year. The jobs to be cut include engineering, marketing and quality-assurance positions. The plant has a total of 400 workers.

Elekta AB, of Stockholm, Sweden, **Royal Philips NV**, of Amsterdam, the Netherlands, and The Netherlands Cancer Institute, reported the installation of a high-field (1.5 Tesla) MR-guided linear accelerator (MR-linac) system. The Elekta MR-linac is designed to capture high-quality images of tumors and surrounding tissue, allowing physicians to rapidly assess and respond by modifying the radiation treatment, a responsive intervention approach.

For Sales Inquiries: http://ip-science.interest.thomsonreuters.com/Bioworld_Sales_Inquiry. NORTH AMERICA, Tel: +1 855 260 5607. Outside of the U.S. and Canada, Tel. +44-203-684-1797. For Customer Service Inquiries, NORTH AMERICA, Tel: +1-800-336-4474. Outside of the U.S. and Canada, Tel. +44-203-684-1796. Or email bioworld.support@thomsonreuters.com. Copyright ©Thomson Reuters. Reproduction is strictly prohibited. Visit our website at www.medicaldevicedaily.com

Regulatory

Continued from page 1

and the Red Head 2 for large-volume fat harvesting, and the Jordy connection system for small-volume harvesting. The Red Head devices consist in part of powered suction pumps, which are regulated as class II devices.

In the March 17 warning, the FDA cited the firm for eight different quality system violations and rejected the company's October 2015 response letter, saying it did not contain adequate supporting documentation to demonstrate that the corrections and planned courses of action have been implemented. However, the agency said it is in receipt of the company's Feb. 23 response letter and will evaluate it along with any other responses to the warning letter before determining next steps.

Miami Fat was cited for failure to identify actions needed to correct and prevent the recurrence of non-conforming product, a citation making note of at least two complaints that the Red Hat 2 lids were susceptible to breaking or cracking after multiple cleaning and sterilization cycles. The company representative acknowledged to the FDA investigator that the company had elected to withdraw the device from the market until it had addressed the issue by selecting new lid material or devising a new mold, but had continued to distribute the device to existing customers who had not filed a complaint.

In another case, the company received a complaint about warping and chipping of the plastic connector on its Jordy cannula, although in some instances the cannula had melted. After investigating, the company found that the device was not autoclaved properly and was touching the metal tray, which caused excessive drying. However, Miami Fat failed to document the corrective action it took in response.

GUARDIAN II HEMOSTASIS VALVE RECALL CLASSIFIED AS LEVEL 1

The FDA recently determined that the recall of Guardian II hemostasis valves by Maple Grove, Minn.-based Vascular Solutions Inc. is a class I recall. The valves are used in catheterization procedures, and the company had announced a voluntary recall of the device in early April after determining that a specific lot of the device is subject to air leakage that may lead to an air embolism, hence the class I designation for this recall.

While the company said it has yet to receive reports of injuries associated with the device, it is urging health care facilities to return any Guardian II hemostasis valves manufactured between March 2015 and February 2016 and distributed from April 2015 to February 2016. The recall covers Guardian model numbers 8210 and 8211, and does not affect the Guardian II NC hemostasis valves.

INACCURATE RESULTS FORCE RECALL OF HSV, GAS TEST KITS

Focus Diagnostics Inc. is recalling certain models of its Simplexa herpes simplex virus (HSV) 1 & 2 Direct and Simplexa group A strep (GAS) test kits. The recall was sparked by concerns that poor lamination between sample reaction wells may lead to leakage into adjacent wells, causing cross-contamination between samples. The cross contamination could yield false positive, false negative, or invalid test results.

The Cypress, Calif.-based company, a division of Quest Diagnostics Inc., of Madison, N.J., said the inaccurate results may lead to improper patient treatment for HSV or GAS. The models affected by the recall include the MOL2150 and the MOL1455, which were manufactured and distributed between July 30, 2015, and Feb. 11, 2016. The company is recommending that its customers only run full discs and to dispose of all partially used discs.

ST. JUDE'S APLATZER TO DEBUT AT ADCOMM

The FDA's circulatory system devices committee will meet May 24 to review the PMA for the Amplatzer patent foramen ovale (PFO) occluder by St. Paul., Minn.-based St. Jude Medical Inc.

According to the company, this device, a double-disc unit constructed from nitinol mesh and polyester fabric, would be the first PFO occluder approved by the FDA. The device comes with a proposed indication of prevention of recurring ischemic stroke in patients who have had a cryptogenic stroke due to a presumed paradoxical embolism.

Tissue erosion was seen during the pivotal trial of the device, which the company deemed a rare but very serious condition. According to St. Jude, the erosion is caused by friction incurred between the device and the heart wall, which can lead to an opening in adjacent areas of the heart wall. This predicament can create a build-up of blood in the pericardial membrane. //

DAILY M&A

Infusystem Holdings Inc., of Madison Heights, Mich., said its subsidiary, Infusystem Inc., has agreed to acquire the infusion pump assets of **Infusaid LLC**. Infusystem will acquire about 400 infusion pumps from Infusaid, a Philadelphia-based company. Financial terms of the deal were not disclosed.

Weifang, China-based **Tricol International Group Ltd.** has acquired **Hemcon Medical Technologies Inc.** Hemcon, of Portland, Ore., will operate as Tricol Biomedical Inc., effective immediately. Tricol bought the entire Hemcon medical device business, including the rights to the Hemcon brand name and the full hemostatic antibacterial wound care product line. Michael Wax will continue in his current position as president and CEO for the business and will be based in Portland. Financial terms of the acquisition were not disclosed.

For Sales Inquiries: http://ip-science.interest.thomsonreuters.com/Bioworld_Sales_Inquiry. NORTH AMERICA, Tel: +1 855 260 5607. Outside of the U.S. and Canada, Tel. +44-203-684-1797. For Customer Service Inquiries, NORTH AMERICA, Tel: +1-800-336-4474. Outside of the U.S. and Canada, Tel. +44-203-684-1796. Or email bioworld.support@thomsonreuters.com. Copyright ©Thomson Reuters. Reproduction is strictly prohibited. Visit our website at www.medicaldevicedaily.com

CARDIOLOGY EXTRA

Keeping you up to date on recent developments in cardiology

By Amanda Pedersen, Senior Staff Writer

Lasers used to control heart muscle cells

Scientists from the Moscow Institute of Physics and Technology (MIPT) that previously succeeded in growing heart muscle tissue on a substrate of spider silk have now moved from growing cardiac muscle tissue to finding ways of controlling it. The MIPT team has discovered how to control the behavior of heart muscle cells using laser radiation. Their study, published in *PLOS ONE*, is intended to help researchers better understand the mechanisms of the heart and could ultimately provide a method of treating arrhythmia. Konstantin Agladze, head of MIPT's Laboratory of the Biophysics of Excitable Systems and the corresponding author of the study, said the result may be immediately useful for studies of the mechanisms of the heart and in the future "we could potentially stop attacks of arrhythmia in patients at the touch of a button." In order to study arrhythmia, the scientists said it is important to be able to create "arrhythmia in vitro," which is what azoTAB (azobenzene trimethylammonium bromide - a modified version of azobenzene) is used for. Its molecule consists of two benzene rings connected by a bridge of two nitrogen atoms. If the molecule is irradiated with UV light, the benzene rings change position relative to one another, they fold, and under the influence of visible light the rings return to their original configuration. An azoTAB molecule can therefore exist in two states, switching between them under the influence of radiation. Agladze and his colleagues "taught" the azoTAB molecules to control cardiomyocytes so that one configuration did not prevent voluntary contractions (passive), and the other (active) "deactivated" contractions. Using a device similar to a projector, but with a laser instead of a lamp, Agladze and his colleagues created at each point the required concentration of the active form of azoTAB. This enabled them to control the cardiomyocytes in each specific point of the heart. However, the precise mechanism of action of azoTAB on the cells remained unclear. The scientists have now been able to explain how the different forms of azoTAB affect cardiomyocytes. Ion channels are used to transfer "commands" from one cell to another; they act as "gates" allowing ions to pass through cell membranes. In cardiomyocytes there are various types of channels capable of allowing potassium, sodium, or calcium ions to pass through. Agladze proposed that azoTAB affects the permeability of some of these channels. The scientists conducted an experiment on heart muscle cells that were placed in a solution of azoTAB in two different concentrations. They were then exposed to light of different wavelengths in the range of near-UV light. When each of the channels was examined, the two others were deactivated using inhibitor substances and the cardiomyocytes were isolated from one another. It was found that after three minutes of exposure to the active form of azoTAB, the current through the calcium and sodium channels reduced by more than two times, and in the potassium channel it increased one and a half times. And after the azoTAB was removed by washing the cells, the function of the ion channels quickly returned to its normal state. The experiment showed that the effect of azoTAB on a cell is reversible. This will mean that the results of the experiments will be able to be used in research and clinical practice, which could potentially lead to an effective treatment for arrhythmias, they noted.

Previously ignored system plays role in heart function

French researchers have found a potential secondary system (the first being the blood system) to explore for the purpose of improving heart function. The study, by the Institut national de la santé et de la recherche médicale, a French biomedical and public health research institution, analyzed the heart lymphatic system in an animal body and showed that this system, which previously received scant attention in terms of cardiovascular research, was highly impaired after a heart attack. Using a biotherapy based on the injection of innovative microparticles, the researchers succeeded in regenerating lymphatic vessels in a targeted manner. This treatment promotes lymphatic drainage, thus limiting post-infarct oedema and inflammation. Heart function is thereby improved, according to the study authors. The results are published in the journal *Circulation*. Following a heart attack, the heart lymphatic system undergoes extensive modification. In this study, the Inserm researchers showed, in addition to this structural abnormality, a deterioration in the functioning of this system, which leads to the development of oedema and chronic cardiac inflammation. To relieve the oedema, they had the idea of stimulating the creation of new cardiac lymphatic vessels in a targeted manner. The research team used biodegradable microparticles, containing growth factors, previously developed during work on the creation of blood vessels. Then they injected rats with a new biotherapy agent, based on the release of an encapsulated growth factor specific for lymphatic vessels (VEGF-C). When administered to rats, the treatment accelerates the post-infarct cardiac lymphangiogenic response, and improves the lymphatic drainage of the heart in three weeks. As a direct effect, it reduces cardiac edema, inflammation and fibrosis, said Ebba Brakenhielm, an Inserm research fellow.

Continues on next page

Continued from previous page

Cancer drug may be re-purposed for heart condition

UT Southwestern Medical Center cardiology researchers have identified molecular ties between the growth of cancer cells and heart cells that suggest existing cancer drugs may be able to help those with enlarged heart cells, a condition that can lead to heart attacks and stroke. The team unraveled the molecular workings behind enzymes called HDACs that are known to spur the spread of cancer. Inhibiting them can also blunt excess enlargement of heart muscle cells, a condition known as cardiac hypertrophy. The findings suggest that drugs currently used to inhibit these enzymes in cancer may also be effective in treating enlargement of the heart muscle, the researchers reported. Joseph Hill, chief of cardiology and director of the Harry S. Moss Heart Center at UT Southwestern, said the work opens the possibility of re-purposing a drug that has been used to treat cancer for more than a decade to target hypertrophic heart disease, for which there is currently no effective therapy. Hill also noted that the work strengthens researchers' emerging understanding of commonalities between cancer and heart disease. "In some cells, disruption of a molecular pathway can lead to cancer, whereas pertubations of that same pathway in heart cells can lead to heart failure," Hill said. "Thus, there are interesting and sometimes surprising commonalities across the biologies of cancer and heart disease." Hill's lab, which studies cardiac hypertrophy, has focused on alterations in the processing of DNA, the blueprint of all cells, in heart disease. Recently, his group has found that targeting processes known to be disrupted in cancer can confer benefit in heart disease. The study appears in the journal *Science Signaling*.

Research calls attention to post-angioplasty bleeding variations

A new study published in *JACC: Cardiovascular Interventions*, examined whether patients treated with bleeding avoidance strategies were those at low risk for post-angioplasty bleeding, not high-risk patients who potentially would benefit more. The researchers noted that the use of bleeding avoidance strategies has only a modest effect on the variation in bleeding rates post-angioplasty among hospitals performing the procedure, leaving about 70 percent of the causes for this variation unexplained. Using data from the American College of Cardiology NCDR CathPCI Registry, researchers examined records from almost 2.5 million procedures at 1,358 sites between 2009 and 2013. In conducting their analysis, they adjusted for patient risk, considering such variables as gender, age, body mass index, the presence of cerebrovascular disease, prior angioplasty and diabetes. They also looked at whether combinations of bleeding avoidance strategies - use of the radial artery for access during angioplasty, administering the blood thinner bivalirudin and sealing off the point of access with a vascular closure device - had an impact on bleeding totals. Throughout the study period, researchers observed 125,361 bleeding events. Patients who had the procedure done with radial access had less bleeding than those who did not: 5 percent compared to 11.2 percent. Bivalirudin therapy was used less frequently among patients who experienced bleeding: 43.8 percent versus 59.4 percent. And vascular closure devices were used at lower rates: 32.9 percent compared to 42.4 percent. Consistent with previous research, the study also demonstrated the risk-treatment paradox. Patients receiving bleeding avoidance strategies had a predicted bleeding risk of 3.2 percent, compared with a predicted bleeding risk of 4.5 percent among those not receiving these strategies. Overall, the researchers found that the median hospital rate of use of any bleeding avoidance strategy was 86.6 percent. Increased use of these strategies was associated with decreased probability of an individual bleeding event. The study also showed a significant variation in bleeding rates among hospitals, just as previous studies had found. After incorporating individual patient risk for bleeding, hospital rates for bleeding varied from 2.6 percent to 9.3 percent. The researchers said the next step is to perform further analyses to determine the cause of variation in bleeding after angioplasty among hospitals, including the use of vascular ultrasound during the procedure when using the femoral artery as the access point, along with using protocols to stop bleeding.