Evaluation of new CHROMagar MRSA to detection of MRSA from the Clinical Specimens

Y. Otsuka, T. Tsubata, M. Onozaki, K. Kubo, H. Hanaki

1 Social Insurance Central General Hospital, Tokyo, Japan, 2 Kanto Chemical Co., Inc., Tokyo, Japan, 3 Kitasato Research Center for Anti-infection Drugs, Tokyo, Japan

Introduction
Low level resistant MRSA has often caused infection in Japan. The MRSA has mecA gene and is induced to become high level resistant by antibiotic-chemotherapy. Thus it is sometimes difficult to detect the MRSA using traditional MRSA Screen Media and sometimes missed it in routine tests. Recently CHROMagar MRSA was launched as novel chromogenic media which can detect this MRSA. We studied how many low level MRSA can be recover clinical specimens comparing the CHROMagar MRSA with traditional Screen Media.

Materials and Method
Microorganisms: The 518 specimens including sputa and pus were collected after starting antibiotic chemotherapy between April 2003 and January 2005 from patients at Social Insurance Central General Hospital. The specimens were inoculated on CHROMagar MRSA (CHROMagar France) and 24h Staphylococcus Agar plates (BBL, USA) incubated for 24h at 35°C aerobically. Growth of colonies showing pink or mauve coloration on CHROMagar plates was considered MRSA, and colonies showing mantled fermentation and lipase reaction (fig.1) on OP agar plates were considered MRSA. The presumptive MRSA colonies from these two media were identified as a B. aureus by PCR (fig.1). The productivity rate of these two media was determined by McNemar and McKic technique. The MRSA type strain (ATCC 43300) was multiple diluted by saline, and each dilution dropped on TSAI Staph Blood Agar (BD), CHROMagar MRSA, and 24h Staphylococcus Agar plates.

Result
Number of presumptive isolates from the 518 specimens for each selective plates were 37 strains of CHROMagar and 85 strains of OPAgar. 39 strains of MRSA were lipase reaction negative, and it was difficult to detect the MRSA by OP Agar. (fig.1) A gene was detected out of all presumptive isolates on CHROMagar MRSA by PCR, and it was validated. Intrigues were detected from CHROMagar MRSA and 5 strains, OP Agar. Staphylococcus Agar. The growth results by McNemar & McKic test is shown in the Table 1. In this study, we could not able to recognize significant difference of number of the colony between CHROMagar MRSA and OP Agar. Staphylococcus Agar, but typical colony shape of MRSA on CHROMagar MRSA was significantly larger than on OP agar. When incubation for 24h, though it was difficult for MRSA to recognize the lipase reaction on OP Agar, MRSA colony on CHROMagar MRSA was colored clearly in mauve.

Discussion
CHROMagar MRSA is designed selective media to induce and detect low level MRSA and contains antibiotics of cephalosporin system in stead of Oxacillin in traditional MRSA screen media. In this study, we recognized that CHROMagar MRSA showed significant improvement in number of recovery of MRSA, and growth on the CHROMagar plates was also superior in traditional MRSA. From 41 of 117 specimens were detected by CHROMagar MRSA, and it was approved to be difficult to recover MRSA on traditional plate because interference of the Pseudomonas spp.

Contact Information
FAX: +81-3-3324-5663
E-mail: baci@gea.ono.ne.jp