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ORIGINAL ARTICLE

Time to Treatment and Mortality during Mandated Emergency Care for Sepsis

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Abstract

BACKGROUND: In 2013, New York began requiring hospitals to follow protocols for the early identification and treatment of sepsis. However, there is controversy about whether more rapid treatment of sepsis improves outcomes in patients.

METHODS: We studied data from patients with sepsis and septic shock that were reported to the New York State Department of Health from April 1, 2014, to June 30, 2016. Patients had a sepsis protocol initiated within 6 hours after arrival in the emergency department and had all items in a 3-hour bundle of care for patients with sepsis (i.e., blood cultures, broad-spectrum antibiotic agents, and lactate measurement) completed within 12 hours. Multilevel models were used to assess the associations between the time until completion of the 3-hour bundle and risk-adjusted mortality. We also examined the times to the administration of antibiotics and to the completion of an initial bolus of intravenous fluid.

RESULTS: Among 49,331 patients at 149 hospitals, 40,696 (82.5%) had the 3-hour bundle completed within 3 hours. The median time to completion of the 3-hour bundle was 1.30 hours (interquartile range, 0.65 to 2.35), the median time to the administration of antibiotics was 0.95 hours (interquartile range, 0.35 to 1.95), and the median time to completion of the fluid bolus was 2.56 hours (interquartile range, 1.33 to 4.20). Among patients who had the 3-hour bundle completed within 12 hours, a longer time to the completion of the bundle was associated with higher risk-adjusted in-hospital mortality (odds ratio, 1.04 per hour; 95% confidence interval [CI], 1.02 to 1.05; P<0.001), as was a longer time to the administration of antibiotics (odds ratio, 1.04 per hour; 95% CI, 1.03 to 1.06; P<0.001) but not a longer time to the completion of a bolus of intravenous fluids (odds ratio, 1.01 per hour; 95% CI, 0.99 to 1.02; P=0.21).

CONCLUSIONS: More rapid completion of a 3-hour bundle of sepsis care and rapid administration of antibiotics, but not rapid completion of an initial bolus of intravenous fluids, were associated with lower risk-adjusted in-hospital mortality. (Funded by the National Institutes of Health and others.).

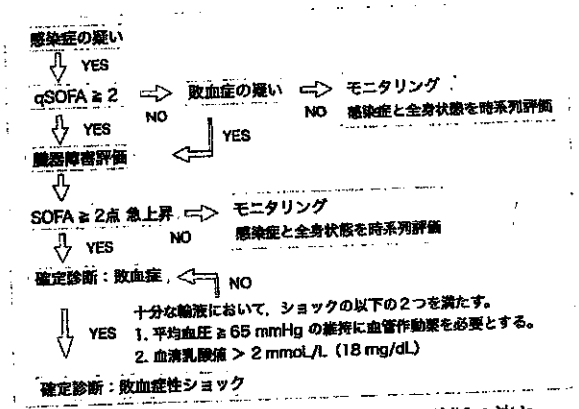

Fig 1-2 敗血症と敗血症性ショックの診断の流れ

【解説】感染症の可能性がある場合，直ちに qSOFA スコアの3項目として，①意識変容，②呼吸数 ≧ 22 /min，③収縮期血圧 ≦ 100 mmHg を評価する。qSOFA ≧ 2 項目では，臓器障害の評価として血液-生化学検査，動脈血ガス分析，血液培養検査，画像検索などを追加し，SOFA スコアを評価して，総 SOFA スコア ≧ 2 点の急上昇により敗血症の確定診断とする。敗血症と評価できない状況においては，感染症と全身状態の時系列評価を繰り返し，qSOFA をモニタリングする。輸液や血管作動薬で平均血圧 ≧ 65 mmHg を維持し，血清乳酸値＜2 mmol/L（18 mg/dL）を目標とする。qSOFA ≧ 2 項目では，集中治療管理を念