

Clinical & Scientific letters

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Junior doctors are not good at recognising and treating sepsis: a validated suggestion for improvement

Background

Early recognition and treatment of sepsis is well recognised to reduce morbidity and mortality. Appropriate intervention with antibiotic agents and the potential involvement of intensive care specialists are key management elements.¹⁻³

Aims

The aims of this study were to ascertain:

- the level of knowledge among foundation year 1 (FY1) doctors of the

criteria for diagnosing systemic inflammatory response syndrome (SIRS), sepsis and severe sepsis, as well as their knowledge of basic initial management of septic patients

- whether a targeted brief intervention using an attachable laminated data card could improve FY1 knowledge.

Methodology

A standardised questionnaire was completed by 26 FY1 doctors at the Royal Berkshire Hospitals NHS Trust prior to one of their mandatory teaching sessions. The questioned topics included:

- which four parameters constitute the SIRS criteria
- what the abnormal values actually are
- which other organ systems are involved in severe sepsis
- how to investigate for a source of sepsis
- initial management steps of sepsis, including time to first antibiotic dose.

The questionnaire was repeated after the doctors had received a sepsis guideline data card that could be clipped to their lanyard or name badge.

Outcomes

There was a 100% response rate. Prior to giving out the cards only seven of the 26 doctors knew all four parameters for diag-

nosing SIRS, whereas after issuing the card 100% of the trainees knew the criteria. Nobody at first knew the necessary degree of abnormality in all the values that are required to diagnose SIRS, but after intervention over 80% of the doctors knew the actual values. Notably 70% of respondents initially thought that blood pressure was a parameter for diagnosing SIRS.

In response to the question 'What are the six organ systems whose dysfunction may indicate severe sepsis?' no participant could initially identify more than four. After the cards had been given out, more than 90% of respondents recognised all six.

Among other management questions, only one-third of FY1 doctors would have requested a lactate in a suspected septic patient, whereas following the brief intervention 23 of the 26 would have ordered one (Table 1).

Conclusion

This study demonstrated that the ability to recognise sepsis among FY1 doctors is poor and there are dangerous gaps in their investigation and management of such patients. The use of a brief intervention card designed to remain with the doctor at all times should increase their ability to recognise, investigate and begin suitable initial management for the septic patient. This includes early and appropriate use of lactate levels, targeted antimicrobial agents and involvement of senior support, including intensivists.

As well as reducing admissions to the intensive care unit, this should reduce morbidity and mortality from sepsis among hospital inpatients. All junior doctors involved in ward cover or emergency admissions should be given not only teaching on sepsis, but also an aide-memoire to facilitate the timely recognition and treatment of this common and dangerous condition.

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Table 1. Results of questionnaire administered before and after foundation year 1 doctors were issued with a sepsis guideline data card.

	Pre-intervention (%)	Post-intervention (%)
Knew the correct definition of SIRS	21 (81)	26 (100)
Knew all four criteria that are used to diagnose SIRS	3 (12)	26 (100)
Knew the correct values for above criteria	0 (0)	21 (81)
Knew that only two parameters are needed to be abnormal to diagnose SIRS	18 (69)	26 (100)
Knew six organ systems whose impairment might indicate severe sepsis	0 (0)	24 (92)
Would request urinalysis	25 (96)	26 (100)
Would request chest X-ray	25 (96)	25 (96)
Would do blood cultures	24 (92)	26 (100)
Would request lactate	9 (35)	23 (88)
Think that antibiotics should ideally be administered within one hour of the diagnosis of sepsis	18 (69)	22 (85)
Would call a senior as soon as SIRS was diagnosed	2 (8)	25 (96)

References

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- 2 Kumar A, Roberts D, Wood KE *et al.* Duration of hypotension before initiation of effective antimicrobial therapy is the critical determinant of survival in human septic shock. *Crit Care Med* 2006;34:1589–96.
- 3 Gaieski DF, Pines JM, Band RA *et al.* Impact of time to antibiotics on survival in patients with severe sepsis or septic shock in whom early goal-directed therapy was initiated in the emergency department. *Crit Care Med* 2010;38:1045–53.

Impact of the National Dementia Strategy in a neurology-led memory clinic

The National Dementia Strategy (NDS) was officially launched on 3 February 2009. It proposed three key themes to address the problem of dementia: improved awareness of the condition, early diagnosis and intervention, and higher quality of care. A pathway for NDS implementation, anticipated to roll-out over a five-year period, was proposed.¹ One year on, the National Audit Office (NAO) published a report into progress on NDS delivery, but frontline services were omitted since they were not anticipated to have changed, as local implementation plans are still being developed. Old age psychiatrists and general practitioners (GPs) were surveyed as part of the audit, but neurologists and geriatricians with specialist interests in dementia and cognitive disorders did not feature.²

The possible impact of NDS in a neurology-led memory service was examined by comparing referral numbers, sources and diagnoses in the 12-month periods immediately before (February 2008–February 2009) and after (February 2009–February 2010) the NDS launch (Table 1).

These data showed a 12% increase in new referrals seen in the second time period, with a marked increase in the percentage of referrals coming from primary

Table 1. Referral numbers, sources and diagnoses before and after the National Dementia Strategy (NDS) launch.

	Before NDS launch (Feb 2008–Feb 2009)	After NDS launch (Feb 2009–Feb 2010)
New referrals seen	225	252
New referrals from primary care (% of total new referrals)	131 (58.2)	175 (70.2)
New diagnoses of dementia (% of total new referrals)	74 (32.9)	75 (29.8)

care (70.2% *v* 58.2%). The null hypothesis that the proportion of new referrals from primary care was the same in the cohorts referred before and after NDS launch (equivalence hypothesis) was rejected ($\chi^2=6.18$, *df*=1, *p*<0.01).

A decrease in the percentage of patients receiving a diagnosis of dementia (DSM-IV-TR criteria) was noted in the patient cohort from the second time period (29.8% *v* 32.9%). The null hypothesis that the proportion of new referrals receiving a diagnosis of dementia was the same in the two cohorts was not rejected ($\chi^2=0.63$, *df*=1, *p*>0.1).

These findings may indicate that the NDS has increased the total number of referrals to neurology-led memory clinics, perhaps by raising awareness of dementia, although the increase is not as marked as that seen following the publication of guidelines on identification, treatment and care of people with dementia under the joint auspices of the National Institute for Health and Clinical Excellence and the Social Care Institute for Excellence (NICE/SCIE) in November 2006.^{3,4} The post-NDS increase in referrals has come mostly from primary care, supporting the NAO finding that GPs are becoming more positive about diagnosing dementia early,¹ but with no accompanying increase in the number of new diagnoses of dementia, hence no evidence for closure of the dementia ‘diagnosis gap’ (too few people being diagnosed with dementia or diagnosed early enough). The impression is that more ‘worried well’ individuals are being referred, rather than those

with previously undiagnosed dementia. This is of concern since, as remarked in another context, ‘Health services struggle when they are overwhelmed by people who don’t need to be there’ (T Stephenson, *Observer*, 26 July 2009). GPs may need more guidance in identifying possible dementia cases requiring onward referral to secondary care. A previous study noted only 20% of GP referrals to this clinic had undergone any assessment with a recognised cognitive test.⁵

References

- 1 Department of Health. *Living well with dementia: a National Dementia Strategy*. London: Department of Health, 2009.
- 2 National Audit Office. *Improving dementia services in England – an interim report*. London: National Audit Office, 2010.
- 3 National Institute for Health and Clinical Excellence/Social Care Institute for Excellence. *Dementia: supporting people with dementia and their carers in health and social care. NICE Clinical Guidance 42*. London: NICE, 2006.
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