



Jenny Doust

A is for aphorism

A woman is pregnant until proven otherwise

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I arrived late at my shift in the emergency department, direct from a session in general practice. The nursing staff had an 'easy' patient for me: a woman, 19 years of age, with pelvic pain and dysuria, whose urinalysis showed white cells and nitrites. I checked the chart for allergies, wrote a script for trimethoprim and went to talk to the patient. The patient was in a cubicle with her partner and they listened patiently while I explained potential triggers for urinary tract infections and ways to avoid them. The patient then mentioned that she had worsening abdominal pain, so I asked if I could examine her abdomen. I was shocked to find a large solid protuberance in her abdomen, with a height well above her umbilicus. The patient and her partner denied any possibility of pregnancy, but I asked the nursing staff to organise a urinary beta human chorionic gonadotropin (beta-hCG) test. The test was positive, so I went back to the cubicle, where I discovered the patient's abdominal pain had intensified and there was fluid over the bed and floor. I now had to explain to the patient that she was not only pregnant but actually in labour.

Highly sensitive beta-hCG tests and transvaginal ultrasounds have made it much less likely that a woman will present with an undiagnosed pregnancy, or that we will miss the diagnosis. In the United States, the National Quality Forum advised that pregnancy testing of women aged 14–50 years who have abdominal pain in an emergency department should be used as a quality measure. Estimates vary depending on the definition of abdominal pain and the source of the data, but a chart review of four academic emergency departments showed that

the rate of testing in eligible women was 94%.¹ The researchers were unable to exclude from the chart records all women who did not require a pregnancy test: those who were posthysterectomy, postmenopausal or with a known intra-uterine pregnancy. There are also situations in which a beta-hCG may be misleading. For example, beta-hCG levels remain detectable up to 60 days after delivery, termination or miscarriage,² so testing may be inappropriate in these women. However, even if the true rate of testing is higher than 94%, it appears a small proportion of women presenting with abdominal pain are not being tested routinely.

Can we rely on patient history? The number of women who state there is no chance of pregnancy but are actually pregnant appears to be declining, perhaps due to the availability of sensitive home pregnancy tests. From an emergency department based study conducted in the USA in 1989, 7% of women who stated there was no chance of a pregnancy were pregnant (a negative predictive value of 93%).³ In similar studies conducted in USA emergency departments in 2006 and 2008, the negative predictive value had improved to 99.7%⁴ and 100%.⁵ Unfortunately, comparable Australian data are not available, nor are rates from general practice settings.

This raises the question of what level of false negatives is acceptable. The most important condition to exclude in a woman with abdominal pain is ectopic pregnancy, a life-threatening condition, and this was the principal reason for the National Quality Forum advice. However, uncomplicated pregnancy is a life-changing event and early diagnosis facilitates patient choice and maximises the opportunity for appropriate care that is tailored to the patient's needs. In ongoing pregnancies, the consequences of fetal exposure to medications or radiation are also important.

Therefore, the diagnosis of pregnancy requires exclusion even at very low levels of suspicion. To phrase it in the terms of clinical epidemiology, the threshold for testing is at a pretest probability close to zero. Even if a woman says that pregnancy is impossible, assuming a negative predictive value of 99%, a general practitioner doing an average of one pregnancy test a day will see about three unexpectedly positive pregnancy tests per year. As the consequences of missing the diagnosis are so important, we need to have a very low threshold for testing women who are potentially pregnant in a number of different settings, not just abdominal pain.

The aphorism, 'A woman is pregnant until proven otherwise', is a useful way to remember this rule.

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