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Hospital-Acquired Infections

Turning birth into an illness

AIMS Journal, 2000, Vol 12 No 3

Hospital acquired infections are becoming a real and persistent danger for birthing women. Pat Thomas argues that it's time we took this subject seriously.

AIMS has spent many years challenging the many widely held myths about hospital-based maternity care. We have argued long and hard that routine hospital procedures made birth less safe and that since birth was not an illness it was not appropriate to force all pregnant women to birth in a place where sick people are treated.

Now a new wrinkle has appeared in the hospital saga - one which is seldom discussed but which has enormous implications for the health of any woman who gives birth in a hospital setting.

The public myth, largely spread by hospitals themselves, is that hospitals are bastions of cleanliness. However, increasing evidence is showing that the rate of nosocomial (hospital-acquired) infections has risen alarmingly in the last 20 years.

According to the most recent figures from the US Centres for Disease Control, between 5 and 10 per cent of all American hospital patients become infected with new diseases while in hospital. Hospital acquired infections are killing 90,000 patients and sickening some 2 million every year.[1]

This makes hospital acquired infection the fourth biggest cause of death in the US, behind heart disease, stroke and cancer.

In the UK figures from the public Health Laboratory Services (PHLS) show that the rate of bacterial infection in hospital is 3.6 per 1000.[2] This figure came from a survey of 61 hospitals and more than 1 million patients. But, as is common with all official reports, there is likely to be substantial underreporting of infection which distorts the true figures.

For example one survey of Nottingham intensive care units found that the incidence of bacterial infections acquired in hospital had risen from 17.7 per 1000 admissions in 1985 to 80.3 in 1996.[3]

Another survey of hospitals in the UK and the Republic of Ireland which involved 37,111 patients from 1576 centres found that the prevalence of hospital-acquired infections was on average 9 per cent (with a

range of between 2-29 per cent).[4] Hospital-acquired infections were higher in teaching hospitals than in non-teaching hospitals (11.2 per cent versus 8.4 per cent). They also found that the four most common sites - the urinary tract (22.9 per cent), the surgical wound (10.7 per cent), the lower respiratory tract (22.9 per cent) and the skin (9.6 per cent) - accounted for two thirds of the total infections identified.

In the PHLS study above, six specialities, general medicine, general surgery, haematology, general ICU, geriatric medicine and nephrology accounted for 72 per cent of all hospital acquired bacterial infections. Two thirds of all the infections were associated with an intravascular device or other devices such as urinary catheters.

The PHLS have also produced another report on surgical site infections which showed that the rate of hospital-acquired infection was even greater at 42 per 1000.[5] While the survey did not specifically research caesarean operations, it did include abdominal hysterectomy - a surgically similar operation. Among women who underwent this procedure 2.5 per cent became infected.

What, potentially, does such information mean to birthing women? In this country around 20 per cent of women, some 160,000 each year, will have a caesarean operation. A woman who has a caesarean will have two out of four of the most common risk factors - a surgical scar, a urinary catheter. Using the PHLS figures as a basis for calculation, then as many as 4000 women each year will acquire infections as a result of having a caesarean.

Since it is estimated that around two-thirds of these caesareans are totally unnecessary, this means that 2640 women each year may acquire bacterial infections which they did not need to get.

It is thought that hospital acquired infections are caused by a variety of things. They may reflect the fact that today's hospitals contain a greater proportion of people who are sicker, older and likely to be hospitalised longer. There is the continuing problem of the personal hygiene among hospitals staff including doctors. Study after study indicated that that hospital workers including nurses and physicians are shockingly lax about keeping their hands clean.

One review of 37 studies into the practice of hand-washing found that most doctors and nurses washed their hands only 40 per cent of the time, even when they were working in intensive care units. The results were even more shocking because many of the practitioners involved in these studies knew they were being watched.[6] However, the most influential reason for the emergence of "superbugs" is the over prescribing of antibiotics which has become habitual in general practice and in hospitals. Because of our misuse and overuse of antibiotics some bacteria have developed defence mechanisms to repel these attacks. They undergo genetic mutations which allow them to produce stronger cell walls, for example, or to change chemical messages.

While some people continue to argue that bacterial infections are not the threat they once were to new mothers, the figures tell a different story. The PHLS Surgical Site report, for instance, noted that 47 per cent of the microorganisms involved were staphylococci of which 81 per cent were Staphylococcus

aureus - 61 per cent of the S. aureus were methicillin resistant.

Methicillan-resistant Staphylococcus aureus (MRSA) is not a new phenomena. It was first reported in 1961, just after methicillin was introduced.[7] It was a curious mixture of complacency and arrogance which allowed us to continue its wide-spread use for another 30 years.

By 1992 around 15 per cent of all Staph strains in the US were methicillin-resistant and nearly 40 per cent of those strains isolated from patients in American hospitals were MRSA.[8] Significant problems with other resistant organisms were occurring elsewhere. In the UK the frequency of penicillin resistant pneumonococci doubled between 1990 and 1995; the microbe's resistance to erythromycin trebled in that same time.[9] This is a picture which is repeated throughout the world.

By 1993 it was thought that nearly every common pathogenic bacterial species had developed some degree of clinically significant drug resistance. And over two dozen of these emergent strains posed life-threatening crises to humanity, having outwitted most commonly available antibiotic treatment.[10]

Today only one antibiotic vancomycin is thought to be effective against most MRSA. But even this drug is becoming increasingly ineffective especially against the enterococci bacterium.[11] It has also been shown that transfer resistance (one organism passing on its resistance on to another) can occur between enterococci and the staph virus.[12] It is now believed that within a few years both Staph and Strep viruses will have acquired widespread vancomycin resistance.

Unfortunately curbing our over-use of antibiotics, while useful, is not necessarily the whole answer. Although it is commonly assumed that once "antibiotic pressure" is taken away, most organisms will lose their resistance, a research team from Emory University has shown otherwise. Their researchers tested this hypothesis on a strain of streptomycin-resistant E. coli. After 135 generations the researchers found that offspring still had a high degree of streptomycin resistance.[13]

In theory antibiotics are a good thing - and in life threatening situations they certainly can be. When all goes well an antibiotic quells an infection by attacking and destroying the organism's protective cell wall; by blocking its production of essential proteins; by interfering with chemical messages essential for reproduction; or by some other equally effective method or combination of methods. But it seems we have enjoyed too much of a good thing - and now we are paying the price.

Not all infections are acquired in hospitals and this journal also looks at a few other infections relevant to pregnant women which are causing concern at the moment. But increasingly the fact is that when you go into hospital you have a good chance of coming out with an infection you did not have beforehand. The longer a woman stays in hospital, the greater her risk. If a she or her baby are in an intensive care unit the risk becomes greater still.

Within the maternity services many urgent questions need to be addressed about the so-called safety of caesarean operations. It is for example, a cause for concern that so many of these operations are carried

out without any clinical indications. The emotional and physical impact on a woman (and, some would argue, on her baby) have been widely observed. Should such an operation inflict further hardship on a woman through scar or urinary tract infections then it is reasonable to ask whether surgery really is the "safest option". Given the current climate, it is also reasonable to ask: How long before a "simple" caesarean becomes a death sentence?

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