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Urodynamics

The term urodynamics covers a wide variety of techniques that allow assessment of bladder function. The most simple is uroflometry, which can often be combined with ultrasonography to determine the presence of residual urine in the bladder. Although this is a useful investigation in men with outflow obstruction, it cannot distinguish between true obstruction and detrusor failure. Video urodynamics offers a more complete assessment of bladder function but is undoubtedly more invasive. Pressure lines are inserted into the bladder and rectum, and the bladder is filled with a mixture of saline and contrast medium. An unstable bladder contraction is detected by a rise in pressure of more than 15 cm water during filling when the patient is not attempting to pass urine. The final phase of the examination determines the pressure generated during voiding and the flow rate that results allowing detrusor failure to be distinguished from outflow obstruction. Fluoroscopic screening during the test may also show vesicoureteric reflux, bladder diverticula, and evidence of stress incontinence.

The illustration of penile cancer was provided by Mr A G Turner, of the normal testis by Mr N H Blackford, and of the renal tumour by Dr Jean Marshall, all from the Edith Cavell Hospital, Peterborough.

The ABC of Urology is edited by Chris Dawson, a senior registrar in urology at the Edith Cavell Hospital, Peterborough, and Hugh Whitfield, a consultant urologist at the Central Middlesex Hospital and the Institute of Urology and Nephrology, London.

Letter from Bosnia-Herzegovina

Signs of hope

Lynne Jones

"Welcome to Sarajevo," Semir said. "You see that everything is exactly the same—no gas, no water, no electricity, shelling, and sniping." Three hours earlier I had arrived back in Bosnia to work with children with special needs and was startled to find myself in a city with brightly lit shops, including a Benetton in the main street, and full cafes. One hour later the city's fragile power supply had given in to the heaviest December snowfall in 10 years, and Sarajevo was plunged into foggy gloom. So now I sat huddled under blankets in the flat of Dr Narcisa Pojskić and her husband, Dr Semir Bešlija, two physicians who had stayed in

Sarajevo throughout the war. Dr Bešlija had divided his time between clinical duties in the city and the front line. Dr Pojskić had helped to set up and run the mental health project of one of the larger non-governmental organisations. Both viewed the peace plan with a mixture of cautious optimism and ambivalence.

They were all too aware of the flaws. They could not, for example, imagine how the unprecedented creation of a supposedly unified state with three separate armies was supposed to work. Nor did they believe that Bosnians expelled from cities remaining under Serb control would exercise their right to return. "So the Serbs will have their ethnically pure state, at least in the immediate future," said Semir. And the reality of an undivided Sarajevo had yet to be brought about. On the day the Dayton agreement was signed in Paris there had been some 300 sniping incidents and four shells lobbed into the city. The following day demonstrating Serbs had blocked convoys through the Karažić controlled suburbs of Ilidža. "We do not feel it is peace yet," Narcisa explained. "We can smell it, but until we can go through Ilidža and do not have to travel over Mount Igman it is not peace."

Growing health needs

Professor Nedžad Mulabegović, former dean of the medical school and now rector of Sarajevo University, is also cautious. "The situation in the city is not much better than six months ago, except that there is more food. In the hospital we are short of specific drugs, new equipment, and parts for repairs, and we are still unable to pay adequate staff salaries." Meanwhile the needs grow. There are more than 4000 amputees and

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Sarajevo is still short of some drugs, and staff salaries are inadequate

JOLY EDITING/IMPACT

KEVIN WEAVER/REX FEATURES

Streets of East Mostar are gutted and filled with rubble

12 000 permanently disabled citizens, 1800 of whom are children. There are at least one million displaced people within the Bosnian Croat Federation, and the population, exhausted by three years of war, is particularly vulnerable to infectious diseases, as evidenced by the fourfold increase in influenza cases in Sarajevo this year. What is impressive is that in the face of these massive problems health professionals are attempting to integrate their emergency response into long term plans for the reform of the health service. Thus Božo Lubić, minister of health, writes that "the reconstruction of health facilities damaged by war should not be started before the global plan of health facilities distribution is made."

Before the war, health care provision in Bosnia-Herzegovina was comparable to western Europe's, with a ratio of 2.6 doctors and six hospital beds to every 1000 inhabitants. However, although there was a network of local health centres, the emphasis was on hospital based care with no specialised training for general practitioners. There is now a consensus that the new health service should centre on primary care provided by well trained family doctors and funded by a combination of public and private insurance schemes. Professor Mulabegović sees the key to these reforms as good education. It is one of the reasons he insisted on keeping the medical faculty running during the war. And although seven faculty members were killed and some 22 shells fell on the medical school, lectures continued every day. In all, 260 students have graduated since 1992, and 53 have taken higher degrees. Mulabegović feels that in many ways the students are better trained because of the good staff to pupil ratios, the long hours spent in the hospital, and the exposure to a wide range of clinical cases. The main problem was the lack of up to date textbooks and access to journals published after 1991. Mirsa Muminović, president of the Bosnian and Herzegovinian Medical Students Association, explained how students bought their books second hand on the street or swapped among themselves. The development of good continuing education, centred on a well resourced and up to date library, has become one of the most urgent needs. "Education is a priority because good doctors lead to a good system," Dr Goran Čerkez, an adviser to the ministry of health, explained.

Relationships among doctors

Amid all these hopeful plans for reconstruction one of the most difficult issues remains unresolved—how to rebuild relationships with colleagues divided by

war. Can it be done? The answer given to such a question is complex. I did not meet a single citizen in Sarajevo, health professional or otherwise, who wanted the Serbs living in Ilidža to leave, although most acknowledged that they were likely to do so. "The main problem is that they hate us much more than we do them, and I still do not know why," commented Semir. Dental student Mersiha Begić was forced out of Ilidža at the beginning of the war. At present she is too scared to go back. "But I want people to stay, even though I am scared, because I know they lived there all their lives, so where else should they go?" My medical colleagues could not imagine, however, working closely again with doctors who left the Koševo hospital in Sarajevo to join Dr Karadžić's forces. "We feel betrayed," Narcisa explained. "I know it is not good, but I would always be asking what they were doing during the war, and they would be asking the same question. What we need is an acknowledgment, some recognition of the suffering caused, not at the national level but at the human level—that would be enough—because there are some facts about how it happened. But I do not think we will get that."

Everyone expressed the hope that colleagues who went abroad during the war would return, while acknowledging that there would be difficulties. "We cannot pretend these three and a half years did not happen—we are not the same," commented Mulabegović. "I know they will be worried as to how they will be accepted, and my fear is that they will come, be disappointed, and leave again, and then I will feel it is my fault," psychologist Radmila Jusović explained. "The fact is that I have a better understanding with my old neighbour who spent the war with me than with my best friend who left at the beginning." The concrete reality is that these skilled health professionals are desperately needed. Semir, for example, is the only one of the 40 students who graduated in his year to have remained in Bosnia. And while the country seems flooded with non-governmental organisations, I heard growing concern about the quality of their work. "It is not adequate to have counselling centres run by people trained in a couple of seminars," said Mulabegović. What he felt was needed was genuine expertise, long term commitment, and a willingness to work within a framework coordinated by the Bosnian state.

Mostar—sign of things to come?

For those wanting a bird's eye view of the future, it does no harm to travel back down the road to Mostar. The city has for the last year been struggling to overcome the division brought about by the war between Bosnian and Croat forces in 1993. During this war East Mostar was brutally besieged and bombed by the Croat Council of Defence, and many of the male Muslim population were interned in concentration camps. Since the Washington sponsored creation of a Bosnian-Croat federation in early 1994, the city has come under the control of the European Union, which is trying to unify it. The major problem, as for the whole of Bosnia, is that this is not a question of bringing together fractious family members who are all equally to blame, but of seeking reconciliation between victim and aggressor. The physical reality of this relationship is brought home vividly in a five minute walk from the gutted houses and rubble filled streets of East Mostar to the glossy, intact boulevards, all hung with Croatian flags and fairy lights, on the west side. This is a walk that adult male citizens of East Mostar still may not do.

During the war, medical services were also divided. The main hospital was located on the west side, so on the east side eight doctors ran a service from the

basement of the Institute of Public Health, treating 16 000 wounded people in seven months. Currently East Mostar is served by a "container" field hospital in a storehouse on the edge of the city. "There are some changes in our minds and our hopes, but in reality not much," the director, Dr Imamović told me. The problem does not lie with the doctors themselves. "We have had a year of good cooperation between health workers on both sides. But in the middle are the check points and the police." Thus in spite of a European Union brokered agreement made a year ago, for freedom of movement of all health personnel, all the East Mostar staff had their identity cards confiscated one morning by the Croat police and have not been allowed back into West Mostar since. So they have only been able to visit the new centre for continuing medical education, established with international funding on the west side, in specially organised buses. "It has an excellent library and other facilities," Dr Imamović continued, "and today they are reopening it with a seminar on the use of electrocardiography in primary care, but our promised new identity cards have still not been issued, and we do not want to attend like prisoners. We would like the freedom to come and go as normal citizens."

There are other contentious issues, such as the billing by West Mostar for the treatment of citizens of East Mostar from the beginning of the war, including those interned. The issue remains unresolved. Imamović also points out the problem raised by the neutrality of some of the humanitarian agencies and the European Union. "There is a difference between the two sides, and if you are neutral in such a situation then

you close your eyes and don't do the right thing. If money is given equally, we build a roof and they put in an elevator." The perception of bias is reinforced by the fact that most aid agencies, with the notable exception of War Child, have their main offices located in West Mostar because of the better facilities, in spite of the fact that most work is done in East Mostar.

But there are signs of hope. The mutual respect with which medical colleagues on both sides talked of each other was impressive. Women and children from East Mostar have had freedom of movement since the beginning of December, and Dr Vladimir Šimunović, head of the centre for continuing medical education, does not believe that access will be a problem for long. Mulabegović sees reunifying Mostar as "essential for the future of the federation and the Dayton agreement. If it does not work in Mostar then the whole European-American approach will fail." He hopes it will not. "The whole history of Bosnia is a history of three peoples. We have had hard wars before, and this is not the first time the Muslims have suffered genocide. But it is the future that is important. We must be together. It is our destiny even if it cannot be soon."

Individuals and institutions can help Bosnian doctors by donating up to date medical books and journals from any specialty published after 1990 to the Sarajevo University Medical Library appeal. For more information about what is needed and your nearest collection point please phone Pam Prior on 01803 654706 or Lynne Jones on 01223 301993.

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Statistics Notes

Logarithms

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This is the 16th in a series of occasional notes on medical statistics.

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Logarithms (or logs for short) are much used in statistics. We often analyse the logs of measurements rather than the measurements themselves, and some widely used methods of analysis, such as logistic and Cox regression, produce coefficients on a logarithmic scale. Here we shall give a brief summary of the properties of logarithms which make them so useful.

We shall start with logarithms to base 10. These are the common logarithms formerly widely used to do calculations for which we now use calculators and computers. The log to base 10 of a number a is b where $a=10^b$. We write $b=\log_{10}a$. Thus for example $\log_{10}(10)=1$, $\log_{10}(100)=2$, $\log_{10}(1000)=3$, $\log_{10}(10\,000)=4$, and so on. It is common to omit the brackets and write $\log_{10}a$, but we are using them for clarity.

If we multiply two numbers, the log of the product is the sum of their logs: $\log(ab)=\log(a)+\log(b)$. For example, $100 \times 1000 = 10^2 \times 10^3 = 10^{2+3} = 10^5 = 100\,000$. Or in log terms: $\log_{10}(100 \times 1000) = \log_{10}(100) + \log_{10}(1000) = 2 + 3 = 5$. Hence $100 \times 1000 = 10^5 = 100\,000$. It follows that any multiplicative relationship of the form $y=a \times b \times c \times d$ can be made additive by a log transformation: $\log(y)=\log(a)+\log(b)+\log(c)+\log(d)$. Likewise, the difference between two logs is the log of the ratio: $\log(a)-\log(b)=\log(a/b)$. As statistical methods cope with additive relationships much more easily than with multiplicative ones, logarithms have many uses. As we shall see in future Statistics Notes,

working with the logarithms of data rather than the data themselves may have several advantages. Multiplicative relationships may become additive, skewed distributions may become symmetrical, and curves may become straight lines.

Most scientific calculators have a LOG key, which will give the logarithm of the number in the display. They usually have a 10^x key, too, which gives us the number of which the display is the logarithm. This is called the antilogarithm or antilog and is useful when dealing with the results of calculations on the log scale.

Many statistical computer programs do not use logs to base 10, but logs to the base e , called natural logarithms. Here $e=2.7183 \dots$ is a mathematical constant, in much the same way that $\pi=3.1412 \dots$. Mathematicians, and hence statisticians, almost always use logs to the base e because it simplifies many formulae. On a calculator this is usually given by the LN key, and the antilog by the e^x key. The numerical relation between logs to base e and base 10 is that $\log_{10}(e) \times \log_e(x) = \log_{10}(x)$. Natural logarithms are also written as $\ln(x)$, or often simply as $\log(x)$.

The base which is used for logarithms is a matter of convenience, depending only on the particular application. The base chosen affects the values of the logs themselves, but nothing else. Provided we use the correct antilog to return to the natural scale, it does not matter what base we use.