Signs and Sounds of High Blood Pressure

The mere act of speaking to another person switches on the cardiovascular system, markedly raising blood pressure and heart rate in a wide variety of people, researchers at the University of Maryland School of Medicine in Baltimore have found over the past several years. Moreover, it now appears that this effect extends to the "silent" communication of deaf people, they report in the January/February PSYCHOSOMATIC MEDICINE. In both hearing and deaf subjects, cardiovascular elevations are steepest for hypertensives, particularly among those taking antihypertensive medication, says U. of Maryland psychologist James J. Lynch. This suggests, he says, that methods of measuring and treating hypertension must be reevaluated.

Data on the link between ordinary speaking and the cardiovascular system were first published in 1980, shortly after the development of a computer-controlled automatic cuff that rapidly and repeatedly measures blood pressure and heart rate. Since then, Lynch and his colleagues have demonstrated that human speech, over and above the influence of emotionally charged topics, is usually accompanied by a rapid increase of between 10 and 50 percent in subjects' systolic, diastolic and mean arterial blood pressures. Hypertensives account for the upper end of this range.

A large number of subjects, ranging from preschool-age children to geriatric populations, have shown the same pattern while reading aloud or talking to an experimenter. The extent of blood pressure increase during speaking is affected by a number of factors, adds Lynch, including emotional content, the rate of speech, audience size, status differences between speaker and audience, the setting and the speaker's resting, nonspeaking blood pressure.

The last variable looms most importantly for hypertensives. "We haven't found any hypertension medications that block the marked elevation in blood pressure that occurs among hypertensive subjects while speaking," says Lynch. In addition, he contends that data on blood pressure and hypertension are skewed by the unintended effects of physician-patient dialogue. "Every doctor knows blood pressure rises when someone is nervous," observes Lynch. "But if the medical strategy is to relax patients by getting them to talk, this may only drive up blood pressure readings, particularly for hypertensives."

For their most recent study, Lynch, psychiatrist Kenneth L. Malinow and their colleagues recruited 38 volunteers — 23 men and 15 women — attending the 1983 convention of the Maryland Association of the Deaf. Seven consecutive measurements of blood pressure and heart rate were obtained from each subject at one-minute intervals. During the first three minutes, volunteers remained quiet and refrained from signing. They communicated with a hearing interpreter fluent in sign language for the next two minutes, describing how their day was going and their general interests. For the final two minutes they again did not sign.

All subjects showed significant increases in blood pressure and heart rate while signing. The average reading for mean arterial pressure, for example, rose from nearly 93 millimeters of mercury to 99 during signing. The seven hypertensives, who had at least one diastolic pressure reading of 90 or greater while at rest or who reported the current use of antihypertensive drugs, had the greatest increases in blood pressure while signing; the mean arterial pressure of this group rose from 107 to 122. Those four on medications had the sharpest increases of all, and in one such case mean arterial pressure rose 80 percent within 60 seconds after signing.

The data need to be expanded, but Lynch describes their implications in *The Language of the Heart: The Body's Response to Human Dialogue* (Basic Books, 1985). He holds that the body participates in dialogue. Attempts to communicate are accompanied by cardiovascular elevations; the same measures drop during listening.

Hypertensives often report feeling calm while their blood pressure rockets, notes Lynch. "These patients are often disconnected from their feelings and have an underlying sense of hopelessness about communicating well," he says. They also tend to think about what they will say next rather than listening to others. The researchers focus treatment on demonstrating how blood pressure rises during communication, teaching deep breathing techniques and slowing patients' often rapid speech. Then, says Lynch, interpersonal issues surrounding dialogue and bodily changes are explored. "We need to see [hypertension] as, in part, a breakdown in dialogue," he asserts. — *B. Bower*

Emerging virus infects human

A marine virus that caused an epidemic among swine when it moved into land animals 53 years ago has for the first time made a human ill. If the virus, a member of the "calicivirus" family, follows the pattern the group has established in other species, the first human infection won't be the last.

Caliciviruses are known to cause a range of ills, from blisters to spontaneous abortion and encephalitis. Common among marine organisms from fish parasites to whales, caliciviruses, if not always the diseases they cause, have also been identified in a wide range of land animals, from snakes to primates (SN: 8/30/80, p. 136).

Last December, Eugene Berry, a researcher at a calicivirus laboratory at Oregon State University in Corvallis, developed the deep blisters characteristic of calicivirus infection. Though the virus caused no other symptoms and did not spread to Berry's family or colleagues, the lab reported the infection to health officials.

Human susceptibility was not unexpected. Anecdotal evidence and positive antibody tests pointed to a few earlier, undocumented infections in other researchers. And the range of hosts already identified is undeniable in its implication. "If you have a virus that has the capability to cross the species range like that, you don't have to be really imaginative to think it'll move just one notch further," says Alvin Smith, head of the lab.

Caliciviruses were introduced into land animals in the 1930s, in fish-containing garbage fed to pigs. In 1956, when the virus was eradicated from pigs, it was thought to have been eliminated from the world. It wasn't until a calicivirus was identified in California sea lions in 1972 that researchers realized the pig virus had come from the sea, and had retreated there.

There were no reported cases of human infection while pig farmers were in close contact with the virus, nor were there signs that the virus could spread to other animal species. The virus's newly evident ability to cross species boundaries, Smith says, indicates it is in a period of change and expansion.

The ultimate import for human health is a matter of speculation. The human host may be a dead end for the virus, since out of a number of probable infections there have been no cases of human-to-human transmission. Or, following the pattern seen in other species, the virus may eventually take hold in humans. "All you can do is extrapolate," says Smith. — *L. Davis*

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