New hope for sufferers of overactive bladder

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(PhysOrg.com) -- Sufferers of overactive bladder have been given hope of a more effective treatment following a breakthrough by UNSW medical researchers.

It's an embarrassing condition affecting hundreds of thousands of Australians, yet it's something no-one likes to talk about. Now sufferers of overactive bladder have been given hope of a more effective treatment following a breakthrough by UNSW medical researchers.

One in five Australians over the age of 40 suffers from overactive bladder, a chronic medical condition characterised by a frequent urge to urinate. Sufferers live in fear of wetting themselves, which can have a debilitating effect on lifestyle. Its causes remain a mystery.

Researchers investigating bladder function in animals have found that acid in urine is an important stimulant of cells lining the bladder wall. These cells in turn release a chemical, ATP, which fires up nerve receptors that signal to the brain that the bladder is full. Researchers have found the existence of specific receptors for acid (ASICs) on the bladder lining.

It is the first connection to be made between acid and bladder function, and raises the possibility that pH levels in urine - which is routinely acidic - can be modified to control the urge to urinate.

A paper on the finding appears this month in the prestigious *British Journal of Pharmacology*.

“No-one really knows what causes overactive bladder - that’s what makes it such a difficult thing to treat,” said the paper’s lead author Professor Elizabeth Burcher, from UNSW’s School of Medical Sciences.

Until now it’s been assumed that the release of the chemical ATP was stimulated primarily by the bladder’s ‘stretch’ as it becomes full.

“Acid is a new stimulus that we haven’t been aware of before,” Professor Burcher said.

The paper’s first author was PhD candidate Prajni Sadananda. Prajni recently submitted her thesis and has now taken up a postdoctoral position at Bristol University.

Overactive bladder is distinct from stress incontinence, which is caused by a weakening of the pelvic floor muscles. Overactive bladder’s economic cost outstrips that of pneumonia/influenza, osteoporosis and gynaecological/breast cancers and is likely to increase as the population ages.

Current treatments for overactive bladder centre on drugs that reduce the activity of neurotransmitter receptors in the bladder wall.

“These drugs make an awful lot of money for drug companies because people have to take them all the time, but there are side effects such as dry mouth, constipation and drowsiness, and they are only effective in some people,” Professor Burcher said.

“A new more cost-effective approach would be terrific. There’s no doubt it’s an area of unmet need. “

Professor Burcher said the next step would be to conduct similar investigations in humans.

“It’s always difficult to relate animal findings to human tissue, and there are species differences,” she said. “But we’ve shown that acid is a stimulus in two animals - the pig and the rat. There’s no reason to believe it wouldn’t be the case in humans too.”

The study was supported financially by the Federal Government’s National Health and Medical Research Council and by a grant from Pfizer.

More information: www.brjpharmacol.org/

Provided by University of New South Wales (news : web)