MedicalXpress

Antioxidants of growing interest to address infertility, erectile dysfunction

July 28 2011

A growing body of evidence suggests that antioxidants may have significant value in addressing infertility issues in both women and men, including erectile dysfunction, and researchers say that large, specific clinical studies are merited to determine how much they could help.

A new analysis, published online in the journal Pharmacological Research, noted that previous studies on the potential for antioxidants to help address this serious and growing problem have been inconclusive, but that other data indicates nutritional therapies may have significant potential.

The researchers also observed that infertility problems are often an early indicator of other degenerative disease issues such as atherosclerosis, high blood pressure and congestive heart failure. The same approaches that may help treat infertility could also be of value to head off those problems, they said.

The findings were made by Tory Hagen, in the Linus Pauling Institute at Oregon State University, and Francesco Visioli, lead author of the study at the Madrid Institute for Advanced Studies in Spain.

"If oxidative stress is an underlying factor causing infertility, which we think the evidence points to, we should be able to do something about it," said Hagen, the Jamieson Chair of Healthspan Research in the Linus Pauling Institute. "This might help prevent other critical health problems as well, at an early stage when nutritional therapies often work best."

The results from early research have been equivocal, Hagen said, but that may be because they were too small or did not focus on antioxidants. Laboratory and in-vitro studies have been very promising, especially with some newer antioxidants such as lipoic acid that have received much less attention.

"The jury is still out on this," Hagen said. "But the problem is huge, and the data from laboratory studies is very robust, it all fits. There is evidence this might work, and the potential benefits could be enormous."

The researchers from Oregon and Spain point, in particular, to inadequate production of nitric oxide, an agent that relaxes and dilates blood vessels. This is often caused, in turn, by free radicals that destroy nitric oxide and reduce its function. Antioxidants can help control free radicals. Some existing medical treatments for erectile dysfunction work, in part, by increasing production of nitric oxide.

Aging, which is often associated with erectile dysfunction problems, is also a time when nitric oxide synthesis begins to falter. And infertility problems in general are increasing, scientists say, as more people delay having children until older ages.

"Infertility is multifactorial and we still don't know the precise nature of this phenomenon," Visioli said.

If new approaches were developed successfully, the researchers said, they might help treat erectile dysfunction in men, egg implantation and endometriosis in women, and reduce the often serious and sometimes fatal condition of pre-eclampsia in pregnancy. The quality and health of semen and eggs might be improved.

As many as 50 percent of conceptions fail and about 20 percent of clinical pregnancies end in miscarriage, the researchers noted in their

report. Both male and female reproductive dysfunction is believed to contribute to this high level of reproductive failure, they said, but few real causes have been identified.

"Some people and physicians are already using antioxidants to help with fertility problems, but we don't have the real scientific evidence yet to prove its efficacy," Hagen said. "It's time to change that."

Some commonly used antioxidants, such as vitamins C and E, could help, Hagen said. But others, such as lipoic acid, are a little more cutting-edge and set up a biological chain reaction that has a more sustained impact on vasomotor function and health.

Polyphenols, the phytochemicals that often give vegetables their intense color and are also found in chocolate and tea, are also of considerable interest. But many claims are being made and products marketed, the researchers said, before the appropriate science is completed – actions that have actually delayed doing the proper studies.

"There's a large market of plant-based supplements that requires hard data," Visioli said. "Most claims are not backed by scientific evidence and human trials. We still need to obtain proof of efficacy before people invest money and hope in preparations of doubtful efficacy."

More information: hdl.handle.net/1957/22169

Provided by Oregon State University