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# AHA 2008: Flu Shot Linked to Reduced Risk of VTE

**Shelley Wood**



November 9, 2008 **(New Orleans, Louisiana)** — Getting the flu shot may protect against venous thromboembolism (VTE), a new retrospective case-control study suggests. According to **Dr Joseph Emmerich** (University of Paris Descartes, France), who presented the results of the **FARIVE** study here at the **American Heart Association 2008 Scientific Sessions**, the findings appear additive to the known link between influenza vaccination and coronary disease and, if confirmed in further studies, may have "broad public-health significance for such a cost-effective intervention."

**Dr Joseph Emmerich**

Based in part on the 2003 **FLUVACS** study, the AHA and **ACC** recommends vaccination against seasonal influenza for secondary prevention in people with known coronary and other atherosclerotic vascular disease. To address whether flu vaccine might also have an effect on VTE, Emmerich and colleagues asked 727 patients hospitalized for a first episode of proximal deep vein thrombosis or pulmonary embolism whether they'd had flu vaccinations in the past year, then compared patient characteristics and medical history with those of 727 control subjects, matched for age and sex, who were also hospitalized during the same period, but with no thrombotic disease.

According to investigators, patients with VTE were significantly more likely to be overweight, have higher education levels, be taking oral contraceptives, have varicose veins, and have received influenza vaccinations during the past 12 months. After all other covariates were controlled for, receiving a flu shot was significantly associated with a 26% reduction in risk of VTE for all case subjects, and with a 48% reduction in patients younger than the mean age in the study cohort, which was 52 years.

"This case-control study suggests for the first time that vaccination against influenza may reduce the risk of VTE," Emmerich concluded.

Discussing the results with the press, Emmerich took pains not to overstate the results, pointing out that they need confirmation in a large randomized controlled trial.

He also emphasized that the study was not designed to look at how flu vaccination reduces VTE risk, but he offered some theories. For one, patients vaccinated might spend fewer days bedridden--a known cause of deep vein thrombosis. Another possibility is that reductions in VTE were directly linked to reduced influenza infections and associated systemic inflammation, which could serve as a catalyst for embolic events. "But if [the benefit of vaccination] was only due to prevention of influenza, you would have seen a much greater decrease during the winter," when flu infections spike, he explained. Instead, the incidence of VTE events tracked over a 12-month period showed that numbers of events in vaccinated and unvaccinated patients seemed to track in parallel, even in winter, suggesting that suppression of flu outbreaks was not the primary source of benefit. Finally, said Emmerich, "a third possibility that I cannot exclude, because of the design of the study, is that the flu shot itself could be beneficial by a pathway I don't know of."

Emmerich said he and his group are hoping to conduct a large randomized prospective trial of flu vaccination to prevent VTE. He also emphasized a need for other groups to duplicate the findings.

"As soon as we get confirmation of these data from other groups, and maybe results of prospective studies in secondary prevention, it would be very useful to enlarge the [professional society] recommendations for the flu shot, not only to high-risk patients or patients with CVD, but also to patients who have had prior pulmonary embolism or VTE."

*Emmerich disclosed having no conflicts of interest.*