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HMG-CoA Reductase Inhibitor Therapy and the Risk of Venous Thromboembolism in Joint Replacement Surgery

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Background: Venous thromboembolism (VTE), comprising deep vein thrombosis (DVT) and pulmonary embolism (PE), is a relatively common postoperative complication. Patients undergoing joint replacement surgery are at particularly high risk of developing VTE. HMG-CoA reductase inhibitors (statins) are widely prescribed medications, but their effect on the development of VTE is controversial.

Aim: The aims of this study are to investigate the difference in the incidence of statin use between patients who did and did not develop VTE following joint replacement surgery and investigate the association between statin use and the incidence of VTE following joint replacement surgery.

Methods: We performed a retrospective analysis of the incidence of symptomatic VTE in all patients who underwent joint replacement surgery by the orthopedic surgical unit at our tertiary referral center in Victoria, Australia, between July 1, 2008, and June 30, 2009. Patients' histories, medication charts, and radiological investigation results were reviewed. All medications (statins and therapeutic anticoagulants) were recorded, along with whether or not VTE (radiologically proven DVT/PE) occurred within 4 weeks of joint replacement surgery.

Results:

	<u>Statin therapy</u>		Total
	No	Yes	
No VTE	367	201	568
VTE	7	12	19
Total	374	213	587

Pearson's chi-square value = 6.133 ($P = 0.013$)

Fisher's exact test (two-sided), $P = 0.026$

Incidence of statin use in patients with VTE = 63.2%

Incidence of statin use in patients with no VTE = 35.4%

Incidence of VTE in patients not on statins = 1.9%

Incidence of VTE in patients on statins = 5.6%

Conclusions: There is a significantly increased incidence of statin use in patients who developed symptomatic VTE compared with those who did not. Moreover, statin use is associated with a significantly increased risk of VTE in joint replacement surgery.