

ORIGINAL RESEARCH ARTICLE

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Psychotropic Medications and the Risk of Fracture A Meta-Analysis

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Supplementary Material

This supplementary material contains the tables referred to in the full version of this article, which can be found at <http://drugsafety.adisonline.com>.

Table I. Study-specific odds ratios (ORs) and 95% CIs for fractures associated with psychotropic drugs: case-control studies

Study, year	Type of fracture	Any psychotropic medication	Benzodiazepines	Antidepressants	Antiepileptics	Barbiturates	Antipsychotics	Hypnotics	Opioids
Brocklehurst et al., ^[54] 1977	Femoral neck					2.10 (0.59, 8.91)		2.35 (0.96, 6.18)	
Paganini-Hill et al., ^[55] 1981	Hip	2.71 (0.99, 8.20)				1.00 (0.38, 2.67)			
Rashiq & Login ^[63] 1986	Femoral neck	0.84 (0.41, 1.73)						0.54 (0.30, 1.00)	
Ray et al., ^[26] 1987	Hip		1.5 (1.19, 1.88)	1.9 (1.3, 2.8)			2.0 (1.6, 2.6)	1.50 (1.19, 1.88)	
Sernbo et al., ^[27] 1987	Hip		0.81 (0.52, 1.26)				4.56 (1.99, 10.40)	0.85 (0.56, 1.30)	
Taggart ^[66] 1988	Hip	1.11 (0.72, 1.73)							
Ray et al., ^[28] 1989	Hip		1.31 (1.21, 1.42)						
Stevens & Mulrow ^[29] 1989	Hip		0.85 (0.43, 1.66)						
Heidrich et al., ^[56] 1991	Hip	1.2 (0.7, 2.1)				3.2 (1.9, 5.4)			
Jensen et al., ^[30] 1991	Femoral neck	1.18 (0.78, 1.78)	1.30 (0.76, 2.24)	1.41 (0.40, 5.23)			1.47 (0.73, 2.97)	1.25 (0.77, 2.04)	1.00 (0.50, 1.98)
Ray et al., ^[47] 1991	Hip	1.5 (1.4, 1.6)		1.34 (1.16, 1.54)					
Jackson et al., ^[57] 1992	Hip				5.9 (0.6, 142.9)			0.4 (0.1, 2.4)	
Shorr et al., ^[64] 1992	Hip								1.27 (1.18, 1.36)
Cumming & Klineberg ^[31] 1993	Hip	1.44 (0.91, 2.28)	1.55 (0.95, 2.54)	1.33 (0.65, 2.76)			1.28 (0.64, 2.55)		
Lichtenstein et al., ^[32] 1994	Hip	2.02 (1.22, 3.33)	2.05 (1.05, 3.77)	2.69 (0.97, 7.43)			0.79 (0.23, 2.75)	1.49 (0.45, 4.89)	

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Table I. Contd

Study, year	Type of fracture	Any psychotropic medication	Benzodiazepines	Antidepressants	Antiepileptics	Barbiturates	Antipsychotics	Hypnotics	Opioids
Poor et al., ^[58] 1995	Hip				3.0 (0.97, 9.3)				
Herings et al., ^[33] 1995	Femur		2.5 (1.3, 4.9)						
Herings et al., ^[48] 1996	Femur			1.59 (0.56, 4.58)			1.71 (0.63, 4.93)		
Grisso et al., ^[67] 1997	Hip	1.7 (1.0, 2.7)							
Gambassi et al., ^[49] 1998	Femur			1.64 (1.39, 1.94)					
Liu et al., ^[50] 1998	Hip			1.95 (1.80, 2.12)					
Scane et al., ^[59] 1999	Vertebral				6.1 (1.3, 28.4)				
Schwab et al., ^[34] 2000	Hip		2.06 (1.06, 3.99)						
Sgadari et al., ^[35] 2000	Femur		1.09 (0.98, 1.20)						
Pierfitte et al., ^[14] 2001	Hip		0.9 (0.5, 1.5)						
Wang et al., ^[36] 2001	Hip		1.46 (1.21, 1.76)	1.46 (1.22, 1.75)			1.61 (1.29, 2.01)		
Bischof et al., ^[60] 2002	Long bones				16.7 (2.5, 144.51)				
da Silva et al., ^[37] 2002	Any type		2.09 (1.08, 4.05)						
Partanen et al., ^[51] 2002	Hip			7.04 (1.54, 64.81)			0.78 (0.23, 2.92)		

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Table I. Contd

Study, year	Type of fracture	Any psychotropic medication	Benzodiazepines	Antidepressants	Antiepileptics	Barbiturates	Antipsychotics	Hypnotics	Opioids
Ryder et al., ^[61] 2003	Appendicular				4.35 (1.17, 16.02)				
Hubbard et al., ^[52] 2003	Hip			1.26 (1.20, 1.32)					
Schlienger et al., ^[38] 2004	Any type		1.62 (1.35, 1.93)		1.66 (1.49, 1.85)				
Vestergaard et al., ^[39] 2004	Any		1.27 (1.15, 1.41)		1.15 (1.10, 1.19)	3.24 (3.02, 3.46)			
	Hip		1.91 (1.43, 2.56)		1.28 (1.14, 1.44)	1.57 (1.26, 1.95)			
French et al., ^[17] 2005	Hip		1.54 (1.19, 1.99)	1.99 (1.69, 2.34)	2.20 (1.72, 2.80)		3.06 (2.18, 4.29)	1.57 (0.57, 4.49)	1.82 (1.51, 2.19)
Hughenholz et al., ^[53] 2005	Hip			1.92 (1.80, 2.05)	0.90 (0.77, 1.05)		1.3 (1.1, 1.5)	1.53 (1.46, 1.61)	

Table II. Study-specific relative risks (RRs) and 95% CIs for fractures associated with psychotropic drugs: cohort studies

Study, year	Type of fracture	Any psychotropic medication	Benzodiazepines	Antidepressants	Antiepileptics	Barbiturates	Antipsychotics	Hypnotics	Opioids
Annegers et al., ^[62] 1989	Hip				2.8 (1.1, 7.5)				
Cummings et al., ^[40] 1995	Hip		1.45 (1.04, 2.01)		2.0 (0.8, 4.9)				
Guo et al., ^[41] 1998	Hip		1.41 (0.90, 2.19)	1.79 (0.65, 4.93)			0.86 (0.40, 1.84)	1.15 (0.78, 1.69)	1.79 (1.05, 3.05)

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Table II. Contd

Study, year	Type of fracture	Any psychotropic medication	Benzodiazepines	Antidepressants	Antiepileptics	Barbiturates	Antipsychotics	Hypnotics	Opioids
Jacqmin-Gadda et al., ^[42] 1998	Hip		2.25 (1.31, 3.88)	2.53 (1.05, 6.12)			1.41 (0.46, 4.30)	1.18 (0.60, 2.31)	
	Non-hip		1.01 (0.74, 1.39)	0.98 (0.54, 1.78)			1.24 (0.63, 2.41)	0.77 (0.51, 1.16)	
Forsén et al., ^[13] 1999	Hip							1.09 (0.83, 1.42)	
Vestergaard et al., ^[43] 1999	Any		1.3 (0.6, 3.0)		1.08 (0.80, 1.46)	1.21 (0.61, 2.40)			
Bae et al. ^[68] 2002	Hip	4.24 (1.89, 9.52)							
Ensrud et al., ^[44] 2003	Any		1.12 (0.88, 1.42)	1.25 (0.99, 1.58)	1.25 (0.79, 1.98)				1.40 (1.06, 1.83)
	Hip		1.20 (0.72, 2.00)	1.65 (1.05, 2.57)	1.37 (0.51, 3.73)				1.22 (0.69, 2.15)
Hasselman et al., ^[45] 2003	Foot		1.68 (1.30, 2.16)						
Card et al., ^[65] 2004	Hip								1.07 (0.80, 1.43)
Wagner et al., ^[46] 2004	Hip		1.24 (1.06, 1.44)						