

Letter to the Editors

Assessing general practitioners' prescribing behaviour in elderly patients with concealed renal failure

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Many avoidable adverse drug reactions (ADR) in elderly patients are due to an absence of dose adjustment according to renal function [1]. Nephron loss is a normal ageing process, leading to a lower glomerular filtration rate (GFR). Many drugs and/or their metabolites are excreted through the kidney; thus, the risk of ADR is increased if dose is not adjusted as a function of creatinine clearance (CC). However, despite a lower GFR, serum creatinine concentration may be normal in elderly patients because the rate of production of creatinine is dependent on dietary intake and muscle mass [2]. Therefore, CC should be systematically estimated in this population. Physician prescribing behaviour has been assessed for hospitalized patients with concealed renal insufficiency (serum creatinine level within the normal range but low estimated GFR) [3–5], but not in general practice. We aimed to assess general practitioners' (GP) prescribing behaviour for elderly patients with concealed renal insufficiency and knowledge of drugs requiring dose adjustment.

The study was carried out in a French *departement* (a French administrative unit). Fifty GPs were randomly selected from the telephone directory of physicians and were asked by phone to participate in the study. The same interviewer questioned the 50 GPs using a questionnaire based on two questions and two clinical cases. The use of a source of recommendations concerning dose adjustment for renal impairment was allowed.

All 50 GPs agreed to participate and completed the questionnaire. This study group included 38 men (76%) and 12 women (24%). Twenty-two GPs worked in a town with a population of >10 000; nine worked in a town with 5000–10 000 people and 19 in a town of <5000 people. For the prescription of drugs in elderly patients, 80% claimed to take CC into account (formula), 14% took only the serum creatinine level into account and 6% considered both. Before prescribing medication to a 70-year-old patient, 28% of the GPs said they evaluated GFR for all new drugs, 32% only for certain drugs, and 51% regularly, even for repeat prescriptions. In the first clinical case, 14% of GPs calculated CC with the Cockcroft and Gault formula and

86% only took serum creatinine concentration into account. Not all GPs would have prescribed the reduced dose of levofloxacin, allopurinol, digoxin and sotalol required for this patient with an estimated CC rate of 49.6 ml min⁻¹ (Table 1). In the second clinical case, some GPs prescribed dextropropoxyphen, celecoxib, nadroparin and pravastatin for this patient with severe renal failure (CC of 25 ml min⁻¹), despite contraindication in this situation, and prescribed amoxicillin and clarithromycin at normal doses, although a reduced dose was required (Table 1). Finally, only 13 GPs (26%) consulted the summary of product characteristics (SPC) of the drugs before answering the questions.

Although most GPs said that they take CC into account, few actually calculated it and most therefore underestimated the severity of renal impairment. Like physicians for hospitalized patients [3–5], GPs do not sufficiently consider renal function of elderly patients. Allopurinol, levofloxacin, digoxin and sotalol are often prescribed without dose adjustment. This oversight can lead to an overdose, with potentially serious adverse effects. Moreover, despite finding renal function to be normal, some GPs prescribed a reduced dose or did not prescribe these drugs at all. This study has revealed that GPs lack sufficient knowledge about some commonly prescribed drugs, such as dextropropoxyphen, which are contraindicated in cases of severe renal failure because of its potentially fatal consequences. However, this study has some limitations. First, the sample size is small for an epidemiological study, and it is difficult to draw any general conclusions about GP practice. Second, some GPs may not have adjusted the dose for the first case because the CC was just below 50 ml min⁻¹.

Awareness that a normal serum creatinine concentration in elderly patients does not exclude the possibility of renal impairment needs to be increased. Before prescribing medication to a patient with CC <60 ml min⁻¹, the SPC, or any other source should be systematically consulted to check that dose adjustment is not necessary or that the drug is not contraindicated in particular situations. We now focus training for doctors in our region on prescribing

Table 1

Prescribing behaviour of GP

For the prescription of drugs in elderly patients (>70 years), did you take into account? Before prescribing to an elderly patient (>70 years), did you evaluate the GFR?		<input type="checkbox"/> the creatinine clearance <input type="checkbox"/> for all new drug	<input type="checkbox"/> the serum creatinine level <input type="checkbox"/> only for certain drugs	<input type="checkbox"/> the both <input type="checkbox"/> regularly even for a renewal of drug
<p>Clinical case 1: The serum creatinine level of Mrs X (70 years old, weight 60 kg) is 10 mg l⁻¹ (88 µmol l⁻¹). Would you describe her renal function as? <input type="checkbox"/> normal <input type="checkbox"/> decreased <input type="checkbox"/> I don't know [Answer = Decreased (estimated creatinine clearance rate of 49.6 ml min⁻¹)] You must prescribe the following drugs for this patient: levofloxacin, allopurinol, digoxin, sotalol. Would you adjust the dose of these drugs?</p>				
<p>When renal function was assessed by GP as 'decreased'</p>				
n = 22 (% GP)		I prescribe with normal dose regimen		Information of the SPC* if creatinine clearance is <50 ml min ⁻¹
Levofloxacin	7 (31%)	I decrease the dose	I do not prescribe	
Allopurinol	7 (32%)	10 (46%)	5 (23%)	3 (11%)
Digoxin	3 (14%)	13 (59%)	2 (9%)	2 (7%)
Sotalol	13 (59%)	18 (82%)	1 (4%)	1 (4%)
		7 (32%)	2 (9%)	0
				reduce the dose by half
				reduce the dose to 200 mg four ⁻¹
				reduce the dose
				reduce the dose by half
<p>Clinical case 2: The serum creatinine level of Mr Y (75 years old, weight 50 kg) is 15 mg l⁻¹ (133 µmol l⁻¹). He has severe renal insufficiency, with a creatinine clearance of 25 ml min⁻¹. You must prescribe the following drugs for this patient: dextropropoxyphen, pravastatin, amoxicillin, clarithromycin, celecoxib, nadroparin (for treatment of a thromboembolism). Would you prescribe these drugs? If yes, for which drugs would you adjust the dose?</p>				
<p>When renal function was assessed by GP as 'normal'</p>				
n = 27 (% GP)		I prescribe with normal dose regimen		Information from the SPC* for creatinine clearance <30 ml min ⁻¹
		I decrease the dose	I do not prescribe	
Dextropropoxyphen	7 (14%)	I decrease the dose	I do not prescribe	Contraindicated
Pravastatin	17 (34%)	36 (72%)	7 (14%)	Contraindicated
Amoxicillin	35 (70%)	17 (34%)	16 (32%)	Halve the dose
Clarithromycin	22 (44%)	14 (28%)	1 (2%)	Halve the dose
Celecoxib	0	20 (40%)	8 (16%)	Contraindicated
Nadroparin (thromboembolism)	21 (42%)	19 (38%)	31 (62%)	Contraindicated
		16 (32%)	13 (26%)	Contraindicated

*SPC, summary of product characteristics.

behaviour for elderly patients with concealed renal insufficiency and on knowledge of drugs which require dose adjustment.

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