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Prescribing contraception for young women

ORIGINAL ARTICLE

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Background.

Since 2002, specially qualified public health nurses and midwives have had the right to prescribe oral contraceptives (OCs) for women aged 16 to 19. This arrangement has since been expanded to cover hormonal contraception, with the exception of the hormonal intrauterine device (IUD). The purpose of this study is to evaluate the arrangement.

Material and method.

The Norwegian Prescription Database (NorPD) uses pseudonyms and contains a number of facts about user, medication and prescriber. A database of women born in 1989, totalling 29,821, has been designed as unit for analysis.

Results.

75 and 79 % of the cohort had filled at least one prescription for OCs or hormonal contraception by the end of the calendar year in which they turned 19. Almost 12 % had filled at least one prescription for the mini-pill, while far fewer had filled prescriptions for the vaginal ring, contraceptive injection, contraceptive patch or hormonal IUD. Doctors issued two thirds of the prescriptions. Public health nurses wrote more prescriptions than doctors for the age group 17 – 18. The period of time during which they had been using the OCs and gestagen pills was independent on prescriber.

Interpretation.

The fact that close to 80 % of the cohort born in 1989 has filled at least one prescription for hormonal contraception shows that there is a high degree of awareness about preventing unplanned pregnancy. Extending the right to write prescriptions to nurses and midwives has increased the availability of contraception, and young women are taking advantage of this option.

There is little available knowledge on the use of contraceptives among young women, since they are rarely represented in surveys of contraceptive patterns in Norway (1) – (3), in the other Nordic countries (4) or in Western countries as a whole (4).

Traditionally, only doctors have had the right to prescribe contraceptives. Sweden is one exception, where midwives were given this right following the liberalisation of The Abortion Act in 1974. Against the background of experience from our neighbouring country and unambiguous results with regard to prevention of unplanned pregnancies in light of a trial involving distribution of contraceptive pills free of charge at public health centres in 1998 – 2000 (5), the right to free contraceptive pills for all women aged 16 – 19 was introduced from 1 January 2002 (6). From 1 June of the same year, specially qualified public health nurses and midwives were given the right to prescribe contraceptives to women aged 16 – 19, according to a specified list elaborated by the Norwegian Medicines Agency (6). During the first years this right comprised only contraceptive pills, but from February 2006 it was expanded to include gestagen pills, contraceptive vaginal rings, contraceptive patches and contraceptive injections (7). At the same time, the arrangement for free contraceptive pills was converted into payment of a set allowance (NOK 100) over a period of three months to cover the costs of hormonal contraception for young women (7).

All hormonal contraceptives subsidised through the allowance scheme are subject to prescription. Thus, the Prescription Database will contain all data necessary for individual retrieval, and thereby represent a valuable source of data for the evaluation of various aspects of the government's efforts to increase the availability of hormonal contraceptives for young women. The purpose of this study is to evaluate the use of contraceptives in a cohort of young women who have made use of the option to obtain free contraceptives/the specified allowance, in light of their pattern of use and the profession of the prescriber .

Material and method

Norwegian pharmacies have for many years registered prescriptions electronically. Since 1 January 2004, this information has been transferred to the Norwegian Prescription Database (NorPD), after having replaced personal data on the user of the medication and the prescribing practitioner with pseudonyms (8). The pseudonyms of the user of the medication and the prescribing practitioner unambiguously define individuals, and the consumption of the medications can thus be monitored over time, for the user as well as the prescriber.

Using the retrieval of the prescription as a unit of registration, the following data on the user of the medication were included: pseudonym (registration number), year of birth, month of birth, gender and municipality. Data on the medication include the anatomical-therapeutic-chemical code (ATC code), product number, number of packs, date of reimbursement, date of retrieval, etc. Data on the prescribing practitioner include the pseudonym (registration number), year of birth, gender, profession and specialty. Data on the pharmacy are also included.

From 1 January 2004 to 31 December 2008, a total of 4,729,890 retrievals of hormonal contraceptives (ATC code G03A) were registered in the Prescription Database. Following exclusion of retrievals for men (n = 779), emergency contraception (Norlevo, Postinor; n = 1,131), project-related contraceptive pills (n = 568), foreign citizens/incomplete personal identity (n = 200,237) and obviously erroneous year of birth (n = 416), data in the registry comprised 4,526,759 retrievals of hormonal contraceptives for women aged 10 – 59. Within this material, a total of 216,528 retrievals made by 23,502 women born in 1989 were specifically identified.

This 1989 cohort turned 15 during the first year of operation of the Prescription Database in 2004, and 19 during 2008. As of 31 December 2008, this cohort comprised 29,821 young women (9). This group constitutes the population studied.

The number of prescriptions for hormonal contraceptives per woman born in 1989 varied from 0 to 61 up to the end of the calendar year when they had their 19th birthday. The data were initially sorted according to the date of retrieval of the prescription. Retrievals of several prescriptions for the same medical product were programmed as a single retrieval, with the sum of the daily dosages. The size of the pack gave the number of daily dosages. The protection period for a contraceptive injection was set to 90 days, and for the implants Implanon and Jadelle to 1,080 and 1,800 days respectively; the protection period for the hormonal IUD was likewise set to 1,800 days.

Time of use was defined through continuous retrievals of the same type of contraceptive from the first date of retrieval (plus the number of daily dosages) to the last date of retrieval. Continuous retrieval was defined as retrievals where the interval between the stated daily dosage and the next retrieval constituted less than 60 days. In case of changes in contraceptive methods, the time of use

was calculated as the date from the retrieval of, for example, an OC to the date of retrieval from the pharmacy of a vaginal ring (contraceptive ring), even if the number of retrieved daily doses for contraceptive pills had not been exhausted. Correspondingly, the time of use of, for example, a hormonal IUD/implants was reduced after a change to contraceptive pills or other hormonal contraceptives before the protection time of previous retrievals had elapsed, to the date of retrieval of the new contraceptive.

In the Prescription Database, health personnel are registered as doctors, public health nurses, midwives, dentists and veterinarians. The pseudonym for the doctor is linked to the Health Personnel Registry, which contains information on his/her year of graduation, year and type of specialisation/sub-specialisation. If a doctor has several specialisations/sub-specialisations, the last recorded field of specialisation is defined as the medical category. Doctors with no specialisation are recorded as undergoing specialisation. Based on the purpose of the study, doctors were classified as undergoing specialisation, specialist in family medicine/public health, specialist in internal medicine, specialist in surgery, specialist in obstetrics/gynaecology and other type of specialist. Six prescriptions from dentists and veterinarians were excluded from the further analyses.

All analyses were undertaken using the Statistical Package for the Social Sciences (SPSS), version 17 – survival analysis, with significance level $p < 0.05$.

Results

A total of 23,502 of the 29,821 (78.9 %) – the cohort of women born in 1989 – had retrieved at least one prescription for hormonal contraceptives before or in the calendar year they turned 19. Most of them (< 75 %) had retrieved at least one prescription for OCs. Fewer had retrieved prescriptions for gestagen pills (< 12 %), injections (< 5 %), patches (< 4 %), rings (< 3 %) or IUDs (< 1 %). Most first-time prescriptions are provided to girls aged 16 – 17 (Table 1). In the calendar year in which they turned 15, a total of 9 % of the cohort had retrieved at least one prescription for contraceptives, primarily in the form of an OC (Table 1).

Table 1:

Age for retrieval of the first-time prescription by type of hormonal contraceptive, and cumulative proportion of those who have retrieved prescriptions. The analyses comprise the entire cohort.

	Type of hormonal contraceptive							
Age (years)	OCs (%)	Patches (%)	Vaginal ring (%)	Injections (%)	Gestagen pills (%)	Implants (%)	Hormonal IUD (%)	Total cumulative prop. (%)
15	8.2	0.3	0	0.5	0.2	0	0	9.0
16	23.8	0.4	0.1	0.7	1.3	0.1	0	33.7
17	22.0	0.8	0.4	1.3	2.7	0.3	0.1	56.5

Type of hormonal contraceptive								
Age (years)	OCs (%)	Patches (%)	Vaginal ring (%)	Injections (%)	Gestagen pills (%)	Implants (%)	Hormonal IUD (%)	Total cumulative prop. (%)
18	12.9	1.1	1.0	1.1	3.9	0.5	0.1	70.3
19	7.8	1.2	1.3	1.0	3.7	0.6	0.3	78.9
15–19	74.7	3.8	2.8	4.6	11.8	1.5	0.5	78.9

Two-thirds of all first-time prescriptions for hormonal contraceptives are written by a doctor, and close to one-third of them are thereby issued by a public health nurse. Among the doctors, those who are undergoing specialisation and specialists in family medicine/public health are the most frequent prescribers. Specialists in obstetrics and gynaecology write few prescriptions to women in this age group, approximately as frequently as midwives (Table 2).

Table 2:

Prescriber of the first prescription by type of hormonal contraceptive. The analyses comprise the entire cohort.

	Type of hormonal contraceptive							
Prescriber	OCs (%)	Patches (%)	Vaginal ring (%)	Injections (%)	Gestagen pills (%)	Implants (%)	Hormonal IUD (%)	Total (%)
Doctors undergoing specialisation	20.1	1.3	0.9	1.9	4.1	0.8	0.2	22.5
Specialist in family medicine/public health	17.2	1.0	0.5	1.6	3.7	0.4	0.2	18.9
Specialist in internal medicine	0.6	0			0.1			0.7
Specialist in surgery	0				0.01			0
Specialist in obstetrics and gynaecology	1.6	0.1	0.3	0.2	0.4	0.2	0.1	1.8
Other medical specialties	2.7	0.1	0.1	0.2	0.6	0.1		3.0
Public health nurse	30.4	1.1	1.0	0.6	2.7			31.6
Midwife	2.0	0.1		0.1	0.2			2.0

	Type of hormonal contraceptive							
Prescriber	OCs (%)	Patches (%)	Vaginal ring (%)	Injections (%)	Gestagen pills (%)	Implants (%)	Hormonal IUD (%)	Total (%)
No prescription	25.3	96.2	97.2	95.4	88.2	98.5	99.5	21.1

The 15-year-olds have their contraceptive pills prescribed to them by a doctor (Table 3). Public health nurses prescribe contraceptive pills most frequently to girls in the transition to and in upper secondary school. The proportion of first-time prescriptions issued by a specialist in obstetrics and gynaecology, other specialists or midwives is low for all ages from 15 to 19 years (Table 3).

Table 3:

Proportion of first-time prescriptions for OCs to girls in various age groups and total, by the prescriber's profession. The analyses comprise the entire cohort.

	Prescriber of contraceptive pills						
Age of the user (years)	Doctors undergoing specialisation (%)	Specialist in family medicine/public health (%)	Specialist in obstetrics and gynaecology (%)	Other medical specialists (%)	Public health nurse (%)	Midwife (%)	Prop. of the cohort (%)
15	3.6	3.5	0.3	0.8	0.1	0	8.2
16	6.9	5.9	0.3	1.1	9.0	0.6	23.8
17	4.1	3.4	0.4	0.6	12.7	0.8	22.0
18	3.1	2.6	0.4	0.4	6.0	0.4	12.9
19	2.4	1.9	0.3	0.5	2.7	0.2	7.8
15–19	2.1	17.2	1.6	3.4	30.4	2.0	74.7

Nine out of ten use OCs continuously over a long period once they have started. The first period of use of contraceptive pills lasted on average for 21 – 22 months (variance 0 – 60 months), and there were no differences between various groups of prescribers (survival analyses) – public health nurse 21.4 months (range 0 – 60 months), doctor undergoing specialisation 21.4 months (range 0 – 60 months), specialist in family medicine/public health 22.8 months (range 0 – 60 months). Average time of use for the first prescription of the other contraceptive methods varied: injection 17 months, mini-pill and implants 13 months (range 0 – 59 months and 0 – 51 months), patch 11 months (range 0 – 59 months), ring 10 months (range 0 – 59 months) and hormonal IUD 10 months (range 0 – 51 months).

Having excluded those women who used or had used a hormonal IUD (n = 130) or implants (n = 456), it turned out that six per cent of those remaining had retrieved contraceptives for six months longer than what they could maximally have used from the first prescription to the cut-off point on 1 January 2009. The

allowance covers three months' use. This is reflected in the observation that the women retrieved their prescriptions (OCs, gestagen pills, rings, patches, injections) for only three months at a time.

Discussion

The awareness of the use of contraception is high, since nearly 80 per cent of the entire birth cohort had retrieved at least one prescription for hormonal contraceptives before turning 20. Three-fourths of the cohort had used OCs and almost 12 per cent had used gestagen pills. The remaining forms of administering hormonal contraception are useful alternatives, but are used by relatively few (Table 1). The study does not encompass the use of copper IUDs, but we assume that relatively few in this age group use this kind of IUD, and that it is approximately at the same level as the use of hormonal IUD. The absence of data for the use of copper IUDs will therefore have only a minor impact on the results.

The observed pattern for first-time prescriptions was identical for all age groups from 15 to 19 years, and fairly constant for all groups of practitioners (Tables 1 and 3). Far more OCs are being prescribed than other forms of hormonal contraception.

Public health nurses/midwives may only prescribe contraceptives to women over the age of 16, and the study shows that only 0.1 per cent of the cohort had received a prescription for OCs from a public health nurse/midwife before having reached that age. In the study, age was estimated as the difference between the year of retrieval of the first prescription and the year of birth. In some cases, this may be inaccurate, but there is little reason to believe that this represents a problem with regard to the regulations.

Doctors undergoing specialisation, specialists in family medicine/public health and public health nurses are the most frequent prescribers of contraceptive pills and other types of hormonal contraceptives to young women. Other medical specialists and midwives rarely prescribe hormonal contraceptives. Public health nurses prescribe more OCs (Table 3) and gestagen pills (data not shown) than doctors to girls aged 17 – 18. For these young women, a public health nurse is easily accessible at the public health centres for youth or within the school health services.

The fact that nearly everybody (96 – 97 per cent) retrieved prescriptions from the pharmacy for only three months, shows that the allowance scheme has an effect on how young women use hormonal contraception. In some cases, this may imply breaks in the use of contraception if the user is not careful about retrieving a new prescription in time, but for most of the users this is not a problem. Some users retrieved the prescription on the same day or after only a few days. In the study, no attempt has been made to find out whether these users possessed several prescriptions or whether they used the same prescription in different pharmacies.

The fact that six per cent of the cohort had retrieved prescriptions corresponding to daily doses lasting more than six months longer than what they could possibly use during the time of the study could be associated with side effects or changes in the form of administering hormonal contraception, or because of foreign travel for which contraceptives are brought along for use over a longer period. Furthermore, it cannot be ruled out that girlfriends help each other out during periods when somebody has lost/forgotten her contraceptives. It would be unfortunate if OCs were retrieved for girlfriends who should not use them because of contraindications or when having been discouraged from using them by a doctor/nurse.

Searches of available literature have not revealed similar studies analysing the use of contraceptives in light of the profession of the prescriber. In the Danish Prescription Database this is not possible, since the data include no information on the prescribing practitioner (10).

Public health nurses have become important prescribers of contraceptives to young women. The intentions in the regulations for a set allowance for hormonal contraception are thus being followed. Public health nurses/midwives hardly ever prescribe hormonal contraception to girls under 16, but for girls aged 17 – 18 the public health nurse is the primary prescriber, because she is easily accessible. Doctors undergoing specialisation, specialists in family medicine/public health and public health nurses prescribe the major proportion of contraceptives to young women aged 15 – 19.

Tabell

Main message
• A total of 79 per cent of the women in our study had retrieved a prescription for hormonal contraceptives before the end of the year they turned 19.
• Doctors account for two-thirds of the prescriptions for hormonal contraceptives to girls in the age group 16–19.
• For girls aged 17–18 public health nurses are the main prescribers.
• Public health nurses have become important contraceptive advisors for young women.

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