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Old age and illness

Ageing is not in itself an illness but it is incontestable that physiological and pathological changes occur in old age which characterise this period of our lives in a special way and fashion. Some aspects relevant to road traffic are worthy of mention: a deterioration in vision and hearing and physical mobility, an increase in multi-morbidity and multi-medication, deterioration in the ability to cope with complex requirements, etc. As vision deteriorates, ability to see in poor light and increased susceptibility to dazzle, which are not amenable to correction with spectacles, are particularly noteworthy. There are great differences between individuals as regards these changes and there is often a problematic discrepancy between a person's own view and that of others as regards this loss. The borderlines between age-conditioned morbid and non-morbid changes is thus often fluid, and it is not always worth while maintaining a difference.

Very few illnesses occur exclusively as a result of advanced age (e. g. idiopathic Parkinson's syndrome, dementia) but many are observed much more frequently in the old than in younger people (e. g. cardiovascular disease and cancer), and lastly chronic illnesses (e. g. diabetes, hypertension, arteriosclerosis, rheumatism) make themselves increasingly felt with increasing age, with damage to organs and joints. This is the cause for multi-morbidity which is so prevalent in old age, i.e. the simultaneous occurrence of several illnesses and/or afflictions. This is the reason for the establishment of geriatrics, i.e. the study of the illnesses of old age. Geriatrics has been an official, optional subdivision in the further training of doctors (1) since 1992.

Typical of „Illness in Old Age" not „Illness of Old Age" is normally a slow onset, chronic progress and above all the multi-morbidity mentioned above. In patients over 70 seven conditions are diagnosed (2) on average according to many writers. Based on geriatric observations, syndromes can be described which occur typically in old age. These consist in mobility problems (e. g. in Parkinson's, post-stroke or arthritis), mental illness such as memory disturbances, confusion and depression, incontinence, syncopes, the side effects of drugs and wrong nutrition (3).

The frequency of illnesses in old age

The age-dependent frequency of illnesses can only be partially stated, since no systematic documentation has been produced for the occurrence of particular diseases e. g. as due to age or other parameters. At the scientific level attempts have been made to evaluate the frequency and distribution of diseases in our society. Some examples are given below:

According to the literature every tenth person over 65 suffers from impairment of cerebral functions. Actual dementia, which obstructs everyday safety due to disturbance in memory and intelligence, increases with age. A good 6 % of the elderly suffer from advanced dementia (4).

A health report published in 1994 by the Dortmund Regional Management Board of the AOK Westphalia-Lippe discussed the prevalence of illness in primary medical care deriving from typical random checks on 5 % of all insured persons under the aegis of the Regional Management Board of Dortmund. This report stated that around half of the over-seventies suffer from hypertension. The average age for strokes was around 71.7 years. Patients with a heart attack are on average 65.3 years old. The greatest prevalence of this disease is for the over seventies. Half of all patients with cancer are 70 or older. Whereas older people complain of back trouble less frequently, degenerative diseases of the joints increase. The over-seventies constitute the largest proportion here. Around 50 % of those dependent on medication are over 70, and the proportion is highest in 70 – 80-year olds (5).

In a micro-census additional health survey in 1995, 0.5 percent of the population were asked about their health in April 1995. Their answers were voluntary. Questions about inter alia „State of Health" were asked. An illness or injury due to accident was by definition present if, during the period of the investigation, persons had felt so constrained as to their state of health that they were unable to carry out their normal activities (e. g. domestic and leisure pursuits in non-working persons). In the case of chronic illness, such as diabetes or hypertension, restriction on the

carrying out of normal activity was not necessary for a person to be classified as „ill". The existence of the diagnosis was sufficient for such classification. From the results of this random check extrapolations were made for the German population at large. This provided information on the state of health of 90 % of the population. The proportion of the over-65s in the population was 16.1 %. The proportion of the over 65s for whom information was available was at the same level. More than 25 % of the over-65s stated that at the time of the inquiry they were either ill (96 %) or had suffered an accident (4 %). Whilst the proportion of the over-65s free from illness or accident was only 13.7 %, the proportion of persons suffering from illness or accident was twice as high at 33.3 %. Compared with their proportion of the population at 16.1 %, the over-65s are thus over-represented as regards persons suffering from illness or accident (6).

Old age and intake of medication

The aspect of multi-medication and the associated side effects of medication is described as a problem typical of old age. Figures will be presented here which will give an insight into this context. The medication prescription report provides information about data, trends and the cost of health insurance prescriptions, since by means of anonymous and statistically prepared prescription data from the area of National Health Insurance (GKV) an evaluation of 2000 leading medicaments was given, which recorded 90 % of the prescriptions for medicaments for GKV patients. The report included amongst other things age-dependent analyses from which it could be established that patients over 60 constitute around 54 % of the total sales of GKV already prepared medicaments. Their proportion of the total population amounting on the other hand to „only" 24 %. On average, patients over 60 are being permanently treated with 2.5 medicaments. In 1998 patients between 70 and 75 were issued with on average 22 prescriptions per year (7).

Especially psychotropic drugs are very frequently prescribed with increasing age. These are drugs which affect the central nervous system and affect mental processes. Examples are antidepressants, tranquillising and mood-enhancing substances, known as tranqillisers. The best-known substance family are the benzodiazepines, which are known to be addictive. The side-effects of psychotropic drugs are above all possible reduced concentration and fatigue.

Women are prescribed clearly more drugs than men and are given almost twice the amount of psychotropic drugs, and go clearly more often to the doctor's. Seventy-three percent of visits to the doctor are by female patients (7).

The correspondingly frequent consumption of medication in old age can interact with age-conditioned and morbid changes. The effect of especially psychotropic drugs and diverse interactions between different medicaments play an important role in this connection. The often underlying multi-morbidity, the changed situation due to age as regards drug metabolism and insufficient readiness under certain conditions to stick to medical instructions add to the difficulty of the situation (8).

An essential risk factor for the occurrence of undesirable side-effects resides in the number of medicaments taken. These include listlessness, feeling ill, sleepiness, dizziness, dry mouth, increased urination, loss of appetite, nausea, etc. A WHO study describes the following profile: confusion, depression, falls, constipation, urinary incontinence, etc (8).

As regards road traffic, it has been established that the correct use of medication can have both a positive and negative effect on the ability of a patient to drive. Driver fitness and driver ability can be achieved under certain circumstances only with the aid of medication. Examples here are the stable medical condition of a patient suffering from diabetes or cramps. Reduced driver fitness however is not only caused by undesirable side-effects. A therapeutically intended effect e. g. during treatment with psychotropic drugs can have a similar effect (9).

This phenomenon applies to all age groups and cannot be regarded as age-specific. The figures for prescriptions quoted above show nevertheless that the aged naturally constitute an essential target group in the prescription of drugs.

Old age and driver ability

The question of driver ability holds an important place for older motorists from the traffic-medical point of view. The active driving of a motor vehicle is a highly complex task. Age-related changes play a particular part here.

Despite the extent of the restrictions mentioned above, there is no disproportionate increased

frequency of accident events in older drivers (10). The risk of accident in supposedly similar road use declines with age and only increases again with extreme old age. Despite this increase the risk of accident for senior citizens over 65 is below that of novice drivers aged between 18 and 25. It is clear that ageing per se does not involve a risk of accident and older motorists do not represent any real danger to road safety (10).

For older travellers driving a car is an important freedom factor. Part of their self-identity resides in the ability to move freely as a driver and be a road user. Losing one's licence means the loss of competence and autonomy for most elderly people. This aspect of the quality of life tends to grow rather than weaken with age.

Conditions for driving a car are ability and fitness to drive. By ability to drive is generally meant the temporally stable ability to drive a car independent of current situation parameters, whilst fitness to drive relates to situation and time.

Old age and worry about loss of licence

Many old people fear that their driving licence may be withdrawn due to impaired ability to drive. Here, fear especially of a so-called medical-psychological examination (MPU) plays an especially important role. Only a few people are so examined as a result of a report to the driving licence authorities due to doubts as to their ability to drive. Every year around 400 of the 5 million older drivers lose their licence due to physical or mental deficiencies. If a comparison is made between the number of elderly people and the total number of driving licences withdrawn in the Federal Republic of Germany it is clear that the figure is only around 4 %, whilst the proportion of the over-60s who are driving licence holders is around 20 %. Thus, for this age group far fewer driving licences are actually withdrawn than the statistics would lead one to expect (11).

Actual age is no reason for justified doubt about ability to drive. If however the effects of an illness are obvious to an outsider – independently of the age of the person affected – impairment may be noticed by a police officer during a vehicle check or after an accident.

Since the 1 January 1999 the police have to inform the driving licence authorities pursuant to § 2 of Section 12 StVG [Road Traffic Act] of facts which suggest more than temporary impairment of ability to drive, if this is required to monitor ability to drive in the view of the instance providing the information (12).

Duty of critical self-assessment

In a judgement of the 20.10.87, the Federal Supreme Court pronounced as follows (13):

- A driver who, on conscientious self-assessment perceives and cannot avoid perceiving obvious features which might lead him to doubt the reliability of his fitness to drive, is required, before undertaking a journey, to make sure, either himself or in consultation with a doctor, whether an impairment is still compatible with his fitness to drive through experience, routine and driving conditions.
- Strict demands are to be placed on the duty of care of car drivers on account of the particular dangers associated with driving motor vehicles. This duty of care is not limited to the actual driving itself but rather the dangers of road traffic require the application of the duty of care also before commencing travel.
- The duty of mandatory self-observation and control are the sharper the earlier the driver has to reckon on impairment of his fitness to drive according to the actual situation. Thus, for example, weakness due to illness may provide the reason for especially critical self-observation and self-regulation. The same applies to advanced age.

Thus, a driver who recognises and cannot avoid recognising age-conditioned phenomena on self-critical assessment, which could affect his fitness to drive according to the knowledge which could be expected of a medical laymen, is enjoined – either himself or in consultation with a doctor – to ascertain whether he is still capable of compensating for phenomena brought on by age through his experience, routine and driving situation. Naturally this duty applies not only when age-conditional phenomena arise and apply not just to older drivers. This duty is enhanced when the driver is exposed to a journey involving particular strain. Such strain can arise due to weakness after preceding illness, unfavourable weather conditions, long distances, difficult road conditions, etc.

Driving licence regulations

Concerning ability to drive a motor vehicle, the basic principle of the Road Traffic Act states that driving licence applicants must fulfil the necessary mental and physical criteria and not have been in serious or repeated breach of road traffic regulations or penal law.

The Driving Licence Regulations (FEV) state under what circumstances and how ability to drive is to be established in individual cases. In August 1998 these regulations concerning the licensing of persons to drive were published in the Federal Legal Gazette (14). The Regulations were necessary inter alia to implement in domestic law the second EC guidelines of 1991 concerning driving licences. This area, hitherto governed by StVZO [Road Traffic Licensing Ordinance] is now governed by its own regulations. These regulations are based on the law to amend the Road Traffic Act and other laws of the 24 April 1998. These regulations especially include general rules concerning the driving of motor vehicles and the conditions for the issue of a driving licence. New rules incidentally apply also to driving licence classification.

A difference must be made between an investigation for a definite reason into the driving ability of the holder of a driving licence and an applicant for a driving licence. Here the regulations state when there is a reason for an investigation and they state the principles according to which ability or conditional ability to drive should be judged. The regulations contain mandatory provisions as to what types of investigation apply in what cases (15).

In the event of doubt about physical and mental ability to drive, in principal only expert medical opinion is applied. Only when medical expert opinion – from the point of view of the doctor himself or due to evaluation by the licensing authorities – for conclusive assessment of driver ability is insufficient can additional evidence be ordered at a medical-psychological investigatory institution (15).

Assessment guidelines for the evaluation of fitness to drive

The Joint Advisory Council for Road Traffic Medicine at the Federal Ministry for Traffic, Building and Housing and the Federal Ministry of Health with its Assessment Guidelines for the Evaluation of Driver Fitness, has produced measured evaluation of driver fitness based on scientific-clinical experience. Assessment criteria have been formulated in the form of guidelines and reasoning intended to aid the professional to decide in individual cases. The sixth edition contains for the first time assessment guidelines compiled from the psychological point of view (16).

Ability to drive a motor vehicle is not present if, due to the person's physical and mental state, there is a demonstrable risk to road traffic. This risk is present if a driver can be considered as no longer able to fulfil the requirements when driving a car which include mastery of a stressful situation, or if the danger of sudden failure of a driver's mental and physical skills can be expected for a foreseeable period (16).

The assessment guidelines are to provide aid in this connection for the technical and unitary evaluation of ability to drive. They are to serve justice in individual cases and thus contribute to assuring mobility.

The role of the doctor in road safety counselling

In the light of awareness that reduction in fitness to drive with age is primarily due to medical reasons, the clinical situation of the GP for the road safety counselling of older road users is of great significance. The GP enjoys a high degree of acceptance with the target group and thus a privileged position to provide personal information (17).

With increased life-expectancy and the known demography GPs will find themselves ever more frequently giving advice to elderly patients on road traffic medicine. The care of the elderly has long been one of the most important tasks of the general practitioner. Every second to third patient in a GP's practice will be 65 or older; a good 40 % of GP activity (with home visits) is for the benefit of this age group (2).

Certain aspects can and should especially be borne in mind by the GP when diagnosing and counselling elderly patients: the occurrence of side effects from medicines when self-administered or from multi-medication due to different medical specialist groups, changed drinking and eating habits, possible drug addiction illnesses (e. g. alcohol, medication) increased physical restrictions e. g. due

to degenerative skeletal changes or stroke, etc. Psycho-social limitations and depression play an important role especially in old age. Different illnesses can proceed entirely without symptoms during this period in their lives, such as heart attack, inflammation of the lungs, thyroid problems and also depression (2).

A particularly confidential relationship is necessary here with the individual patient, in order to arrive at an appropriate assessment of the overall psycho-physical situation in relation to inter alia ability to drive. Appendix 4 to FEV sets out the diseases and physical handicaps which prevent or limit ability to drive. If the doctor decides that conditions are present in his patient which rule out ability to drive, he must so inform his patient.

In individual cases justified worry may arise on the part of the doctor in such a situation as to the safety of the patient but also the safety of others. In this case he must weigh up the legal merits with an awareness of his function of „adviser" to the patient. Only in this way can the doctor be assured of the confidence of his patient and of co-operation as regards his advice.

Following a judgement by the Federal Supreme Court, the doctor may, despite his basic duty of confidentiality, according to the principles concerning weighing up conflicting obligations and interests, be justified in informing the traffic authorities, if his patient takes a vehicle on the roads despite no longer being capable of driving it due to illness without jeopardising himself and others. It is a prerequisite for a justified report to the authorities that the doctor has previously made the patient aware of his state of health and the dangers of being behind the steering wheel, unless persuasion by the doctor is pointless ab initio because of the nature of the illness or because of the lack of comprehension on the part of the patient (18).

Researchers into road traffic medicine at the Federal Highway Research Institute are endeavouring to strengthen the sensitivity of doctors on this topic and to gain an insight as to whether the necessary basis and motivation are present in everyday treatment for qualified counselling by doctors. Lack of time and problems in invoicing expensive counselling measures could under certain circumstances prevent the necessary counselling in individual cases. Further measures need to be planned here to optimise the use of preventive potential should the occasion arise.

Proposals for a procedure where driver fitness is in doubt due to age

In the light of the above, the following procedure is appropriate in the event of doubt as to driver fitness due to old age (15).

- Self-assessment by the driver, with suitable instruction and explanation
- In the case of doubt, counselling by the GP (the assessment guidelines contain evaluation measures for such counselling)
- In the case of doubt on the part of the administrative authority assessment by a doctor specialising in road traffic medicine
- Where appropriate, medical-psychological assessment on the advice of a specialist doctor

Old age and road traffic safety work

Maintaining mobility in old age and the associated prophylaxis for illness should be regarded as an economic matter affecting society as a whole. Maintaining mobility in old age should nevertheless be weighed against the risk of possible hazard to traffic in individual cases. Information and explanation in the sense of road safety work with the elderly are necessary in order to support them in their efforts to maintain the physical and mental health needed when driving a motor vehicle (15).

An essential aim of every measure must be to put older road users in a position to be more aware of their shortcomings and to compensate for them more consciously. The competence and readiness of individual elderly people to recognise relevant limitations in good time and to take adequate compensatory measures – and where relevant to accept their non-ability to drive – will make a decisive contribution to personal and general road safety. Recommending and gradually persuading the elderly to use alternative means of transport (e. g. public transport, taxi, etc) should also form part of any measures.

Based on the reasons for the judgement by the BGH cited above on critical self-assessment (13) and whilst taking into account the formation of opinion concerning medical assessment of driver ability in the Assessment Guidelines, DVR [the German Road Safety Council] has produced a Checklist for Older Drivers to counsel older

motorists. By means of 14 questions information is gained on momentary sensitivity, diseases, medicines and the suitable planning of journeys. A decisive factor for the success of this self-assessment is persuasion to seek medical advice in the event of doubt.

Literature

[1] FÜSGEN, I.: Die Geriatrie wird zur Schlüsseldisziplin – Gespräch mit Professor Dr. I. Füsgen. Münchner Medizinische Wochenschrift 139, Heft 7, 1997, S. 12-14

[2] COMBERG, HU., FISCHER, GC., SCHUG, SH.: Betreuungsaufgaben bei bestimmten Patienten- und Bevölkerungsgruppen – Kinder, Jugendliche, alte Menschen. in: Fischer GC, Schug SH, Busse V, Krause F, Schlopsnies W (Hrsg.): Allgemeinmedizin. Springer Verlag Berlin Heidelberg New York, 1993, S. 47-62

[3] SCHETTLER, G.: Geriatrie, eine sozialmedizinische Herausforderung. Versicherungsmedizin 48, Heft 3, 1996

[4] BICKEL, H.: Gesundheitspolitische Bedeutung von Demenzerkrankungen. Klinikarzt 24, Heft 4, 1995, S. 151- 155

[5] FERBER, L. (Hrsg.): Häufigkeit und Verteilung von Erkrankungen und ihre ärztliche Behandlung – epidemiologische Grundlagen eines Qualitätsmonitoring. Institut für Sozialwissenschaftliche Analysen und Beratung, ISAB-Schriftenreihe Nr.34, Köln Leipzig, 1994, S. 129-382

[6] Statistisches Bundesamt, Fachserie 12, Reihe S.3, Fragen zur Gesundheit, 1995

[7] SCHRÖDER, H., SELKE, GW.: Arzneimittelverordnungen nach Alter und Geschlecht. in: Schwabe U, Paffrath D (Hrsg.): Arzneiverordnungsreport 1999, Springer Verlag Berlin Heidelberg, 2000, S. 684-696

[8] Redaktionsartikel: Risikofaktor Arzt: Unerwünschte Arzneimittelwirkungen bei Senioren. Münchner Medizinische Wochenschrift 139, Heft 7, 1997, S. 52

[9] FRIEDEL, B., BECKER, S.: Arzneimittel und Verkehrssicherheit. Deutsche Akademie für Verkehrswissenschaft: 37. Deutscher Verkehrsgerichtstag 1999. Veröffentlichung der auf dem 37. Deutschen Verkehrsgerichtstag am 28. und 29. Januar 1999 in Goslar gehaltenen Referate und erarbeiteten Empfehlungen

[10] OSWALD, WD.: Ältere Autofahrer: Täter oder Opfer?. in: Kaiser HJ, Oswald WD: Altern und Autofahren. Verlag Hans Huber, Bern, 1999, S. 17-34

[11] HEBENSTREIT, B.: Ältere zum TÜV? Über Fairness in der Fahreignungsdiagnostik mit Älteren. in: Kaiser HJ, Oswald WD: Altern und Autofahren. Verlag Hans Huber, Bern, 1999, S. 73-92

[12] Gesetz zur Änderung des Straßenverkehrsgesetzes und anderer Gesetze. Bundesgesetzblatt Jahrgang 1998 Teil I Nr. 24, ausgegeben zu Bonn am 30.April 1998, S. 748

[13] Bundesgerichtshof, Urteil VIZR 280/86, v. 20.10.1987

[14] Verordnung über die Zulassung von Personen zum Straßenverkehr und zur Änderung straßenverkehrsrechtlicher Vorschriften. Bundesgesetzblatt Jahrgang 1998 Teil I Nr.55, ausgegeben zu Bonn am 26. August 1998

[15] EMSBACH, M., FRIEDEL, B.; Unfälle älterer Kraftfahrer. Zeitschrift für Gerontologie und Geriatrie, Band 32, Heft 5, 1999

[16] Begutachtungsleitlinien zur Kraftfahrereignung, 6.Auflage, herausgegeben vom Bundesministerium für Verkehr, Bau- und Wohnungswesen, Berichte der Bundesanstalt für Straßenwesen, Mensch und Sicherheit, Heft M 115, 2000

[17] KAISER, HJ., TEICHMANN, S., MYLLYMÄKI-NEUHOFF, J., SCHÜSSEL, K., OSWALD, WD., JAENSCH, P.: Anspracheformen der Verkehrsaufklärung älterer Menschen. Berichte der Bundesanstalt für Straßenwesen, Mensch und Sicherheit, Heft M 90, 1998

[18] BGB §§ 1004, 823; StGB § 300 (Berechtigung des Arztes zur Benachrichtigung der Verkehrsbehörde über Gesundheitszustand eines Patienten). Bundesgerichtshof, Urteil vom 08.10.1968, Neue Juristische Wochenschrift, Heft 49, 1968, S. 2288-2291