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More diagnostic indexes from general practice for some important forms of cancer

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Mehr diagnostische Indexe aus der Allgemeinpraxis für einige wichtige Krebsformen

Zusammenfassung. Eine Methode der Berechnung des positiven Prädiktionswertes (PPV) und „Likelihood ratio" (LR), basiert auf der Bayesschen Wahrscheinlichkeit, ist früher beschrieben worden. In dem vorliegenden Artikel ist diese Methode angewandt worden für eine nichtheilende Wunde im Verhältnis zu Hautkrebs, einen Knoten in der Brust im Verhältnis zu Brustkrebs bei Frauen, eine genitale Blutung im Verhältnis zu Unterleibskrebs bei Frauen und Verdauungstörungen im Verhältnis zu Magenkrebs. PPV von einer nichtheilenden Wunde im Verhältnis zu Hautkrebs nimmt mit dem Alter zu, von 0,5%–0,8% bis 3,8%–5,8%. LR übersteigt 100 für jüngere Altersklassen. PPV für einen Knoten in der Brust bei Frauen nimmt bis zum Alter von 69 Jahren zu, von 0,2%–0,3% bis 4,1%–6,5%. LR ist 50–79 für die jüngste Altersklasse 20–29 Jahre aber nur ungefähr 20–40 für die mittleren Altersklassen. Ab 70 Jahre ist PPV viel höher, 30,7–48,3, und LR ist 167–355. Für genitale Blutung bei Frauen nimmt der PPV zu, von <1% vor den Wechseljahren bis 22–50% nach den Wechseljahren. Ab 70 Jahre nimmt der PPV wieder ab bis 7,3%–15,0%. LR ist niedrig vor den Wechseljahren aber nimmt nach den Wechseljahren bis auf dreiziffrige Werte zu. PPV für Verdauungsstörungen im Verhältnis zu Magenkrebs nimmt mit dem Alter langsam zu, von <0,1% bis 2,4%. LR variiert von 10 bis 40 wobei die ältesten Patienten die niedrigsten Werte haben. Es gibt keinen wichtigen Unterschied zwischen Männern und Frauen für diese diagnostischen Indexe. Der Wert des Ergebnisses wird diskutiert.

Summary. A method of calculating positive predictive values (PPVs) and likelihood ratios (LRs) on the basis of Bayesian probabilities has been described previously. In the present article the method is applied to a sore which does not heal in relation to skin cancer, a lump in the breast in relation to female breast cancer, genital bleeding in relation to internal genital cancer in females and indigestion in relation to stomach cancer. For non-healing sores or moles, PPV increased with age from 0.5–0.8% to 3.8–5.8%. LR exceeded 100 for the younger age groups. The PPV of lump in the breast for breast cancer increased steadily from 0.2–0.3% to 4.1–6.5% up to 70 years of age. The LR was 50–79 for the age group 20–29 years but fell to around 20–40 in intermediate age groups. After the age of 70 years there was a steep rise in PPV to 30.7%–48.3% and in LR to 167–355. For genital bleeding the PPV rose from less than 1% before the menopause to 22–50% after the menopause, falling again to 7.3%–15.0% for women 70 years old or older. LR changed from around 10 before the menopause to three-figure values after. The PPV of indigestion for stomach cancer increased slightly with age from <0.1% to 2.4%. Most LR values varied in the 10–40 range, decreasing slightly with increasing age. There were no significant sex differences. The validity of the results is discussed.

A method of calculating diagnostic indexes for possible cancer symptoms seen in general practice has been described elsewhere [1]: the positive predictive value (PPV) and the likelihood ratio (LR) were calculated for colorectal cancer and lung cancer. The Norwegian investigations behind the various estimates necessary for calculation were described [1]. The calculations are based on knowledge of the prevalence of the symptom in general practice encounters (P‹Symptom› where P = probability), the prevalence of diagnosable cancer at the time of encounters (P‹Cancer›) and the proportion of encounters during which cancer symptoms are presented (P‹Symptom/Cancer›) [1].

In the present article the same investigations are used as a basis for calculating diagnostic indexes for some frequently presented symptoms in relation to

skin cancer, excluding basal cell carcinoma (SkC), breast cancer (BC) and cancer of the internal genitalia (GC) in female patients, and stomach cancer (StC).

The basic data include warning signals recorded in 1981–1982 during 11,606 consultaltions by 14 general practitioners [2]. Warning signals were recorded in 629 of these consultations [1, 2]. Rates for the warning signals considered here are shown in Table 1. P ‹Symptom› is estimated on the basis of these rates. The incidence rates in 1982 for the forms of cancer mentioned are shown in Table 2 (males) and Table 3 (females). P ‹Cancer› is estimated on the basis of these figures [1].

The sensitivity estimates (S′) for the proportion of cancer cases in which the symptom occurs at some time before diagnosis are described in the discussion. Literature studies and studies of warning signals in general practice are used as the basis of these estimates [3–5]. The proportion of encounters in which the cancer patient will complain of the symptom concerned is described as a range of values $S = S' : 2 \pm 0.1$, for reasons described previously [1].

Diagnostic indexes were calculated using the 2×2 table. No calculations were made for sex and age groups with fewer than three warning signal recordings or an incidence rate lower than 1 in 100,000.

Table 1. Warning signals recorded per thousand consultations, by sex and age

Age group	Sore		Lump		Bleeding		Mole		Indigestion	
	F	M	F	M	F	M	F	M	F	M
0–19	0	0	21	25	6	3	1	0	3	2
20–29	1	0	16	9	15	3	1	3	3	13
30–39	2	0	34	17	23	8	2	0	13	14
40–49	1	4	38	17	30	11	0	2	14	15
50–59	4	2	26	7	9	12	0	2	12	10
60–69	1	11	26	11	12	16	1	2	22	23
70+	7	11	20	17	22	19	2	3	30	39
Total	2	3	25	15	16	9	1	2	11	14

Results

The PPV of each symptom is presented together with the LR in Tables 4–7.

Table 2. Incidence of skin cancer, excluding basal cell carcinoma and not including lip cancer, and of stomach cancer in Norwegian male adults in 1982

Age group	SkC		StC	
	No	I	No	I
20–29	12	0.04	1	–
30–39	39	0.13	2	0.01
40–49	45	0.22	23	0.11
50–59	74	0.34	71	0.33
60–69	111	0.54	173	0.84
70+	200	1.18	354	2.09
20+	481	0.34	624	0.44

No, Number of cases per year; I, incidence rate per 1,000; diseases: SkC, skin cancer; excluding basal cell carcinoma; StC, stomach cancer

Table 4. Age distributed positive predictive value (PPV) and likelihood ratio (LR) of sore or mole (S, M) in relation to skin cancer (SkC), excluding basal cell carcinoma and not including lip cancer

Age group	PPV (P ‹SkC/S, M›)		LR	
	Males	Females	Males	Females
20–29	0.5–0.8%	1.2–1.8%	134–201	202–306
30–39	–	2.0–3.0%	–	102–155
40–49	1.5–2.2%	–	68–102	–
50–59	–	2.8–4.0%	–	103–156
60–69	1.7–2.5%	–	31– 47	–
70+	3.4–5.1%	3.8–5.8%	30– 45	46– 71
20+	2.8–4.0%	4.3–6.7%	82–125	139–214

P, Probability; ‹X/Y›=X given the presence of Y; sensitivity of sore or mole presented at an encounter (P ‹S, M/SkC›)=0.4–0.6

Table 3. Incidence of some forms of cancer in Norwegian female adults in 1982

Age group	SkC		StC		BC		GC	
	No	I	No	I	NO	I	No (cerv+corp+ov=total)	I
20–29	17	0.06	0	–	11	0.04	28+ 1+ 7= 36	0.11
30–39	57	0.20	5	0.02	97	0.33	87+ 4+ 25= 116	0.40
40–49	50	0.25	13	0.07	245	1.23	60+ 36+ 44= 140	0.70
50–59	58	0.27	37	0.17	288	1.32	63+108+114= 285	1.31
60–69	91	0.40	80	0.35	408	1.78	80+112+135= 327	1.43
70+	216	0.86	256	1.02	660	2.63	63+122+138= 323	1.29
20+	491	0.33	391	0.26	1,709	1.15	381+383+463=1,227	0.83

No, Number of cases per year; I, incidence rate per 1 000; cerv+corp+ov=cervix uteri+corpus uteri+ovary/tube/broad ligament; diseases: SkC, skin cancer, excluding basal cell carcinoma; StC, stomach cancer; BC, breast cancer; GC, internal genital cancer (cervix+corpus uteri+ovary/tube/broad ligament)

Table 5. Age distributed PPV and LR of lump in the breast (L_B) in relation to breast cancer (BC) in females

Age group	No. of cases	P ⟨BC⟩	P ⟨L_B⟩	PPV (P ⟨BC/L_B⟩)	LR
20–29	11	0.00004	0.007	0.2– 0.3%	50– 79
30–39	97	0.00033	0.017	0.7– 1.1%	21– 33
40–49	245	0.00123	0.021	2.0– 3.2%	17– 27
50–59	288	0.00132	0.019	2.4– 3.8%	19– 30
60–69	408	0.00178	0.015	4.1– 6.5%	24– 39
70+	660	0.00263	0.003	30.7–48.3%	167–355
20+	1,709	0.00115	0.010	4.0– 6.3%	36– 59

P, Probability; ⟨X/Y⟩=X given the presence of Y; sensitivity of lump in the breast presented at an encounter (P ⟨L_B/BC⟩)=0.35–0.55

Table 6. Age distributed PPV and LR of genital bleeding (B_G) in relation to internal genital cancer (GC) in females

Age group	No. of cases	P ⟨GC⟩	P ⟨B_G⟩	PPV (P ⟨GC/B_G⟩)	LR
20–29	36	0.00011	0.012	< 0.1– 0.2%	3– 20
30–39	116	0.00040	0.015	0.1– 0.6%	3– 15
40–49	140	0.00070	0.021	0.4– 1.0%	6– 15
50–59	285	0.00131	0.001	22.0–46.0%	215–650
60–69	327	0.00143	0.001	24.0–50.0%	221–699
70+	323	0.00129	0.003	7.3–15.0%	61–137
20+	1,227	0.00083	0.009	1.3– 3.0%	16– 37

P, Probability; ⟨X/Y⟩=X given the presence of Y; sensitivity of genital bleeding presented at an encounter (P ⟨B_G/GC⟩):

Cervical cancer:	age 20–39	0.05–0.25
	age 40–49	0.1 –0.3
	age 50–59	0.15–0.35
	age 60+	0.2 –0.4
All adults	age 20+	0.1 –0.3
Cancer of corpus uteri:		0.35–0.45
Cancer of ovary/tube/broad ligament		0 –0.15

Table 7. Age distributed PPV and LR of indigestion (I) in relation to stomach cancer (StC)

Age group	PPV (P ⟨StC/I⟩)		LR	
	Males	Females	Males	Females
20–29	–	–	–	–
30–39	<0.1%	<0.1–0.1%	18–32	19–35
40–49	0.2–0.3%	0.1–0.2%	17–30	18–32
50–59	0.8–1.5%	0.3–0.7%	25–46	21–38
60–69	0.9–1.7%	0.4–0.7%	11–20	11–21
70+	1.3–2.4%	1.3–2.3%	6–12	13–23
20+	0.8–1.4%	0.6–1.1%	18–33	23–41

P, Probability; ⟨X/Y⟩=X given the presence of Y; sensitivity of indigestion presented at an encounter (P ⟨I/StC⟩)=0.25–0.45

For non-healing sores or moles there was a steady increase in PPV with age, from 0.5–0.8% to 3.8–5.8%. LRs were quite high, reflecting the fact that these symptoms are not very frequently presented by patients without cancer. Young adults had the highest values, and women had slightly higher values than men (Table 4).

For lump in the breast the PPVs for breast cancer increased steadily from 0.2–0.3% to 4.1–6.5% up to 70 years of age. The LR was 50–79 for the age group 20–29 years, but fell to around 20–40 in intermediate age groups. After the age of 70 years there was a steep rise in PPV to 30.7%–48.3% and in LR to 167–355 (Table 5).

For genital bleeding the sensitivity estimates varied for the three forms of cancer included, and for cervical cancer the proportion of patients with bleeding varied for the different age groups. This is because in many cases of cervical cancer the diagnosis is made in the asymptomatic stage on the basis of a routine cervical smear, and this varies for the different age groups. There was a striking rise in PPV and LR after the menopause. PPV rose from less than 1% before the menopause to 22–50% after the menopause, falling again to 7.3%–15.0% for women 70 years of age or older. The LR changed from around 10 before to three-figure values after the menopause (Table 6).

The PPV of indigestion in relation to stomach cancer increased slightly with age but the figures remained low for both sexes, with maximal PPV values around 2%. The LR was mostly in the 10–40 range, though it decreased slightly with increasing age (Table 7).

Discussion

Uncertainties attached to the basic data were discussed in the previous paper [1]. The consequences of possible errors were also considered. For the symptoms treated in the present article the following considerations were made:

P‹Symptom›

Lump. The rates recorded [2] refer not only to lumps in the breast but to "lumps anywhere in the body, especially in the breasts, and even if they are painless". I have assumed that the difference in rates between females and males reflect the rates of breast lumps. Some lumps in the breasts are presented by men, but these are rare and probably do not make much difference to the rates of lump in males. Apart from breast cancer, no disease frequently presenting with lump anywhere in the body seems to be much more frequent in either sex. Records of lumps are sufficiently frequent to make very great random differences unlikely. In the age group 0–19 years, in which lumps in the breast are infrequent in both sexes, the rates are similar, though slightly higher in boys, who sometimes consult because of benign pubertal lumps in the breasts.

Bleeding. The rates recorded are for "abnormal bleeding from body orifices" [2]. Apart from the genitalia, bleeding from the nose, gastrointestinal tract, respiratory tract and urinary organs is recorded here. Up to the age of 39 years such bleeding is not estimated to be very different in the two sexes, and the difference between females and males is used as an estimate of the rate of genital bleeding in females. So is the estimate for the very old (70 years or more), when benign causes of bleeding are probably not very different in men and women. Between 50 and 69 years the frequency of bleeding is higher in men. Both benign and malignant disease of the gastrointestinal tract and of the respiratory tract is more frequent in men, which probably explains most of the shift in bleeding rates in these age groups. Most women stop menstruating around 50 years of age. Genital bleeding probably does not represent much more than 10% of the total bleeding rate in these age groups and is therefore estimated to account for 1 consultation per 1,000. For the age group 40–49 years the difference between the sexes is 19 per 1,000. To estimate the genital bleeding rate in women this difference has been adjusted to 21 per 1,000. This is because the greater bleeding tendency in men for other than genital causes is thought to start in this age group.

P‹Cancer›

The use of yearly incidence rates as a measure of the prevalence or probability of cancer was discussed in the earlier paper [1]. For breast cancer this may be somewhat more problematic than for other forms of cancer. In the Norwegian studies [3–5] most initial consultations took place within 3 months after the first symptom appeared, and all diagnoses of female breast cancer were made within 8 weeks after the first consultation. Other considerations may balance this [1], but the PPVs given for breast cancer in Table 5 may be too high rather than too low. The LR does not depend on prevalence and is affected very little.

P‹Symptom/Cancer›

S′ expressing the probability that a symptom occurs at some time before diagnosis was estimated as follows for the different symptoms ($S = S' : 2 \pm 0.1$):

Sensitivity of non-healing sore or mole as a sign of skin cancer excluding basal cell carcinoma and not including lip cancer: $S' = 1.0$; $S = 0.4–0.6$.

It is almost inconceivable that skin cancer should ever be diagnosed without the presence of a symptom easily perceived either as "any sore which does not heal" or "changes in colour or size of warts and moles". Two patients with malignant melanoma and six patients with squamous epithelial skin cancer each presented with one of these symptoms [3–5].

Sensitivity of lump in the breast in relation to breast cancer in females: $S' = 0.9$; $S = 0.35–0.55$.

All 21 women with breast cancer in my study [3–5] presented with a lump. Nonetheless, though most breast cancers in 1982 were detected on the basis of lumps, some breast cancer patients may present with secretion, eczema of the nipple or other skin changes.

P‹LB/BC› should therefore be a little less than 1.0, or 0.9.

Sensitivity of genital bleeding in relation to internal genital cancer in females: The sensitivity (S′) is difficult to estimate because there is no systematic organization of cytological screening of the cervix in Norway. The proportion of patients in the partially prescreened population who actually experience bleeding has been estimated for each age group:

Cervical cancer:
age 20–39: $S' = 0.3$; $S = 0.05–0.25$
age 40–49: $S' = 0.4$; $S = 0.1–0.3$
age 50–59: $S' = 0.5$; $S = 0.15–0.35$
age 60+: $S' = 0.6$; $S = 0.2–0.4$
All adults age 20+: $S' = 0.4$; $S = 0.1–0.3$
Cancer of corpus uteri: $S' = 0.9$; $S = 0.35–0.55$
Cancer of ovary/tube/broad ligament: $S' = 0.1$; $S = 0–0.15$

Three forms of cancer have been included under internal genital cancer in females. They vary in the tendency to bleed before diagnosis, and in younger age groups cervical cancer is more frequently diagnosed on the basis of a Papanicolaou smear than on presentation with symptoms. Of 24 patients with cervical cancers, 9 (38%) presented with bleeding [3–5].

Sensitivity of indigestion in relation to stomach cancer: S′:0.7; S = 0.25–0.45

"Indigestion or change in bowel habits if this is not rapidly normalized" comprises a wide range of symptoms and, together with lump and bleeding, belongs to the group of frequently recorded warning signals (Table 1). When it is seen here in relation to both stomach cancer and cancer of the colon [1], it should be borne in mind that changes in bowel habits are more important for cancer of the colon, while other kinds of indigestion are more relevant to stomach cancer.

The literature is quite contradictory as to which symptoms can be expected to occur in the early, localized stages of stomach cancer. In part this may be due to different vocabulary. The higher incidence of the intestinal type of carcinoma in high-incidence countries like Japan may play a role. Where gastroscopic screening is common, less interest is shown for symptoms. When symptoms are clear-cut, in most cases the disease will already have advanced beyond the localized stage. The same rather vague indigestion may be caused by a non-cancerous condition, advanced cancer or early cancer, and the last is the least frequent. Still it remains an intriguing challenge for the general practitioner to identify vague indigestion caused by localized stomach cancer. In a Norwegian patient population 72% of 276 patients had advanced cancer by the time they were treated [6]. Fielding et al. [7] identifed 90 of 13,228 cases as "early" and said most of these had symptoms. Two German studies found that 65% [8] and almost all [9] of about 30 patients with early gastric cancer in each study had symptoms that might be classified as indigestion.

I conclude that there is probably about 70% probability of finding indigestion in potentially curable patients with stomach cancer, and that the patients in whom stomach cancer was diagnosed in 1982 had at least this probability of presenting with indigestion.

The consequence of deviations in sensitivity estimates from real values were discussed in the earlier paper [1]. In most cases cancer of the corpus uteri will not be discovered until it bleeds, while an ovarian cancer will only exceptionally cause genital bleeding. Deviations from the estimated probabilities of 0.9 and 0.1, respectively, cannot be very great. Slight deviations will not lead to significant alterations in PPVs.

Positive predictive values (PPV) (= P ‹Disease/ Symptom›) and likelihood ratios (LR)

The PPVs based on single symptoms are usually low, as already discussed [1]. Both indexes, but especially LR, vary if the sensitivity estimate is changed.

The better we define our population, the more we can rely on the diagnostic indexes. Figures for the whole adult population of one sex carry less weight than more age-specific indexes. This is particularly the case when age-specific indexes vary widely, as in the case of genital bleeding in female subjects (Table 6).

We can see the expected general tendency to a gradual increase in PPV when incidence increases with age. For LR there is no definite pattern. High LRs in young adults for non-healing sore or mole and for lump in the breast reflect low consultation rates for these particular symptoms, with a subsequently low false-positive rate, despite the generally high consultation rates for young people [1]. High LR for lump in the breast in old age also reflect relatively few consultations for this symptom in this age group with high breast cancer incidence. In this case the PPV is high. Presentation with lump in the breast in women 70 years old or more carries a high probability of breast cancer. It is possible that benign changes in the senile breast are less easily perceived as a lump than changes in younger pre- or postmenopausal breasts. Lower diagnostic indexes in lower age groups do not suggest a less serious diagnostic attitude to lumps in the breast, but reflect the dilemma that many non-cancerous lumps are being presented as well.

The high diagnostic indexes for genital bleeding in postmenopausal women remind us of the saying that postmenopausal bleeding is cancer until it is proved not to be. The fall in diagnostic indexes in very old women probably reflects the increasing importance of bleeding caused by mucosal senile atrophy.

For skin cancer there is a fall in likelihood ratio in very old people. Old people consult quite frequently for skin problems, increasing the false-positive rate of the symptom in relation to cancer.

For the age groups 50–59 and 60–69 years the PPV of indigestion for ventricular cancer is stable in both sexes, although the probability of ventricular cancer is twice as high in the higher age group. The LR decreases. Again we observe that the false-positive fraction increases while the true-positive fraction resulting from our estimate remains stable. Relatively more people in the older age group consult for indigestion, and the PPV increases only very little in spite of a clear increase in incidence.

Like the probability of lung cancer in women [1], the probability of breast cancer is likely to change with time. More breast cancers will be found by mammography. This will reduce the probability that breast cancer is diagnosed because of a lump. The PPV of a lump in the breast will decrease somewhat because of this. An analogous decrease may occur for internal genital cancer in countries in which nationwide computerized screening programmes are introduced for cervical cancer. This will lower the probability that such cancers are diagnosed because of cervical bleeding. The PPV of cervical bleeding in relation to cervical cancer will decrease, but probably not much.

Conclusion

The figures calculated should be interpreted with caution. Some of the basic data will probably be different in other places and at other times. The tables are important in that they show the variation in probability at different ages and for each sex and demonstrate the difference in approximate probability levels between different symptoms and different forms of cancer.

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Buchbesprechungen

Bahrs, O., Wilhelm, J.: Rehabilitierung beginnt zu Hause. Empirische Untersuchung zu Idee, Wirklichkeit und Chance beruflicher Rehabilitation bei Anfallskranken. Göttingen: Edition RE 1989. 269 S., DM 38,–. ISBN 3-927636-08-8.

„Rehabilitierung beginnt zu Hause". Das klingt erst einmal nach einer lapidaren Feststellung – und ruft sogleich Erstaunen hervor. Denn: Rehabilitation beginnt in der Regel eben nicht zu Hause, und der Titel ist von den Autoren auch nicht als Feststellung, sondern als Forderung gemeint. Wie kommen sie dazu? Das vorliegende Buch ist als Teilauswertung des medizin-soziologischen Forschungsprojekts „Epilepsie und Arbeitswelt" – wohl eine der größten Untersuchungen ihrer Art in der Bundesrepublik – zu verstehen. Befragt wurden über 400 Anfallskranke im Alter von 16–65 Jahren. Der Großteil von ihnen (380) in einer standardisierten, ein kleinerer Teil (42) in einer biographisch orientierten, qualitativen Erhebung, einige nahmen an beiden Befragungen teil. Wie es nun mit „Idee, Wirklichkeit und Chance beruflicher Rehabilitation bei Anfallskranken" aussieht, haben Ottomar Bahrs und Jürgen Wilhelm anhand der Beschreibung des Berufsbildungswerkes Glückstätt und verschiedenen Rehabilitationsverläufen anschaulich und nachvollziehbar dargestellt. Skizzen von Erwerbsverläufen ohne Förderungsmaßnahmen runden das Bild ab. So hat sich herausgestellt, daß etwa jeder zweite Anfallskranke eine Förderungsmaßnahme benötigt. Doch mit der Beratung und Vermittlung einer geeigneten Rehabilitationsmaßnahme tun sich beispielsweise die Arbeitsämter schwer. Ihre Aufklärungsarbeit orientiert sich fast ausschließlich an Sicherheitskriterien für den Anfallskranken; seine individuelle Situation, die sich aus viel zahlreicheren Komponenten zusammensetzt (z. B. Familie, Freizeit, Kollegen, Sportverein) wird sehr schnell vergessen bzw. nicht als „rehabilitationsrelevant" angesehen. Ganz anders die Autoren: Sie fordern, daß Reha-Einrichtungen, Arbeitsämter, niedergelassene Ärzte, Neurologen und Ambulanzen enger miteinander kooperieren und ihre Wissenslücken füllen müssen. Für den Hausarzt ist das Buch auch deswegen interessant, da nach einem Erstanfall in der Regel der Hausarzt gerufen wird, und er in zwei Drittel der Fälle zumindest die Verdachtsdiagnose „Epilepsie" stellt. Auch wenn die Behandlung in den Zuständigkeitsbereich des Facharztes fällt, können die Allgemeinärzte durch Medikamentenverordnung weiterhin an der Therapie beteiligt bleiben. In den Kasuistiken verdeutlichen die Autoren die Verwebung von körperlich erscheinender Erkrankung und psychosozialer Problemlage. Notwendig wäre kontinuierliche und integrierende Behandlung: Hier ist auch der Hausarzt gefordert. Rehabilitation kann nach Ansicht der Autoren nur dann sinnvoll sein, wenn sie die je individuelle Situation des einzelnen Betroffenen bedenkt und die Familienmitglieder des Erkrankten miteinbezieht, denn: Rehabilitation beginnt zu Hause.

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Dieses Werk berichtet vom ersten Phytotherapie-Kongreß in Köln. Die hohe Zahl klinischer Pharmakologen unter den Autoren der Beiträge zeigt, welche Beachtung die Phytotherapie nun auch im Kreise der klinisch Forschenden erlangt hat. Dennoch kann das Werk die praxisnahen Erwartungen eines Allgemeinarztes kaum befriedigen, da in erster Linie Fragmente aus der aktuellen Forschung um pflanzliche Heilmittel präsentiert werden. Demzufolge kann man sich zwar über einige wissenschaftliche Ergebnisse praxisrelevanter Therapien informieren (z. B. mit Echinacea, ätherischen Ölen und Mistelextrakten), eine Einordnung des praktischen Stellenwertes dieser Mittel kann dem Leser aufgrund des Buches aber höchstens stellenweise gelingen.

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