Chapter 30 - Does taking more than one medication increase the risk for adverse events?
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The answer to this question depends on how many medications you are taking and how “compatible” these medications are with each other. Not surprisingly, the risk of experiencing adverse events increases in proportion to the number of medications you take.

**How do medications influence each other?**

Most medications mix quite well and there is little or no risk in taking them together. Other medicines, however, do not “get along” so well. For example, two medications depending on the same liver enzyme to break them down may end up “competing” for this enzyme. Since the body can produce only so much of the enzyme, one of the medications will not be metabolized properly. As a result, this medication can “accumulate” in the body, leading to serious adverse reactions.

For example, a medical journal report described the danger of taking the calcium channel blocker mibefradil (Posicor) at the same time as the cholesterol-lowering drug simvastatin (Zocor). Both medications are broken down by the same liver enzyme. Mibefradil “blocked” the breakdown of simvastatin and caused a 20-fold increase in the blood level of simvastatin, which led to major kidney damage in a number of patients. Mibefradil was subsequently removed from the market.

It is much easier to determine and predict the unwanted effects of incompatibility in patients taking just a few medications. It becomes almost impossible to determine which two medications are incompatible in patients using a large number of medications. Avoiding this incompatibility is another reason for limiting the use of many medications (see Chapter 37).

**What are the major predictors of adverse effects?**

As you might guess, one of the strongest predictors of developing adverse events is the number of medications you are taking. The more medications you take, the more adverse effects you are likely to experience. For many
patients with several diseases requiring treatment, it is difficult to avoid taking a large number of medications. The downside, however, is an increased risk of experiencing medication-related adverse reactions.

Elderly patients are particularly sensitive to developing adverse effects. With advanced age comes decreased renal function, lower capacity of the liver to metabolize (break down) medications, and increased sensitivity to medications. Collectively, these factors contribute to the higher rate of adverse effects in elderly patients (see Chapter 12).

**Are adverse effects additive?**
Due to the large number of possible adverse effects with each medication, taking several medications increases the risk that two or more medications may cause the same adverse reaction, thus increasing significantly the severity of that particular reaction. If two of your medications cause dizziness, you are more likely to experience this adverse effect, and the symptoms likely will be of greater intensity than if either medication were taken alone. In other words, the adverse reactions are additive.

**Key messages**

- The more medication you take, the higher the risk of adverse effects.
- Patients with several medical conditions are at high risk of experiencing adverse events.
- A number of factors related to aging contribute to the risk of adverse effects.
- Similar adverse reactions caused by different medications are additive.
- Many medications are incompatible and may interfere with each other’s breakdown.